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Endocarditis *

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Someone has said that, "the amount of knowledge which one age, or certainly one man, can add to the common store, is small."

Statistics would seem to indicate that the diagnosis of active endocarditis is missed frequently enough to justify an occasional review of the salient points in this affection without attempting to add any new theories.

Endocarditis; acute, sub-acute, or chronic, is only an important incident in the course of various infective processes. Only active endocarditis will be considered.

Active endocarditis is divided into acute rheumatic, subacute bacterial, and malignant or ulcerative types. By far the most important of these is the "rheumatic," because on this, to a very great extent, the other two types depend.

When we consider active endocarditis, the primary process, or at least the actively associated pathology, should be stressed.

Acute rheumatic endocarditis consists of some manifestation of rheumatic fever: in which are included "growing pains," fever (slight to severe), anemia, increased white blood count, lassitude, rheumatic nodes, acute rheumatic fever, and chorea. It should be emphasized that rheumatism with its frequent attendant heart disease rarely manifests itself with the same degree of severity in the child as it does in the adult.

Pain is present ("growing pains") and not infrequently limp, but tender inflamed local signs are generally lacking and although it may produce relatively little immediate disability, the subsequent cardiac damage may be very extensive.

Many of the present workers in this field consider that acute rheumatic fever, chorea and rheumatic endocarditis are different manifestations of the same disease, caused by an identical virus. They emphasize its chronicity, its tendency to acute exacerbations and the quality and quantity of its symptoms. It is frequently an insidious condition, and probably by far the largest portion of individuals suffering from the disease secure little or no intelligent care. The potential chronicity and the evidence of low grade activity often pass unrecognized and untreated.

Some idea as to the role that focal infection plays in this disease may be gained from the statistics of Mackee, who found that 80 percent of a series of 317 cases of acute rheumatic fever had definitely demonstrated focal infection, most of which was in the teeth, tonsils and sinuses. Eighty percent had had no tonsillectomy before the first attack.

It is not the acute fulminating type that is so much neglected as is the chronic insidious type with transitory precordial pain and hyperasthesia. Other accompanying symptoms are, the occurrence of abnormal rythms (especially gallop rythm), impaired nutrition, and recurring leukocytosis, all are somewhat controlled or improved by salicylates.

Swift states "A study of the heart action with the electrocardiograph has shown evidence that there is some degree of functional disturbance in over 90 percent of cases suffering from rheumatic fever. The early and frequent recourse to anti-rheumatic drugs in cases of this kind have so completely changed the picture of rheumatic fever as it used to be known that we must always be on our guard in the presence of rheumatic manifestations in the child or young adult."

It is also quite possible that climate has a considerable effect on the manifestations of this disease. Wood and his associates showed that the incidence of rheumatic heart disease is almost twice as great in Massachusetts as in Virginia.

* Clinics on heart for Santa Monica Branch of Los Angeles County Medical Association. Held Sept. 14th, 1926, at National Military Hospital.

As to the pathology: It should be remembered that the endocardium is seldom involved alone and in so far as the heart is concerned it is really a pancarditis. The character and health of the cardiac muscle is of far greater prognostic import than is the integrity of the valves. The symptoms offer a better estimate of the heart's functional capacity than the signs.

As to the treatment:—All foci of infection should be cleared up. The patient should be kept at absolute bed rest for a much longer time than is usually enforced and should be regarded as a potentially infected individual for many years. About 70 percent of patients having one attack of rehumatic fever have recurrences (relapses of an infection having alternate periods of latency and activity).

Salicylates have a tendency to mask the symptoms without curing the disease and thus give a false sense of security, making it difficult to enforce the essential prolonged rest. The maintainence of nutrition is one of the most important therapeutic measures for this disease. A restricted diet is not indicated. Salicylates, however, aid in maintaining nutrition because they control the fever and its concomitant state.

Subacute bacterial endocarditis and malignant endocarditis are considered together because the difference between them is one of quantity or intensity rather than quality. The pre-existing valve lesion is essential for the production of these forms of endocarditis.

It is usually a disease of adult life. The valves of the left side of the heart are the ones that are chiefly involved. The previous disease producing the original valvular affection has in more than one-half of the recorded cases been an acute or subacute rheumatic infection. It occasionally occurs on congenitally deformed valves.

In these cases associated pathology, other than that which is secondary to the cardiac condition, can be found. Prominent are:—sinusitis (especially the antrums), infected tonsils, peridental infections, pneumonitis, pelvic cellulitis, osteomyelitis, acute febrile disease, e. g., scarlet, erysipelas and influenza yield their quota.

The types of infection noted in a great majority of the cases recorded are of the non-hemolitic streptococcus group (especially the streptococcus viridans and bacillus influenza). Negative blood cultures do not rule out the disease because in the subacute type the blood stream is often bacteria-free for long periods of time.

The clinical course of the subacute bacterial type often extends over a period of one or two years with remissions and considerable variation of symptoms. It usually has a fatal termination as dose the malignant type.

It presently has an insidious onset. The patient is not seen as a rule until the disease is far advanced and is experiencing some symptoms of cardiac decompensation; or until some accident due to the invariable state of bacteremia accompanying the general toxic condition, occurs.

Frequently in the early stages of infection the patient, if seen by a physician, is diagnosed malaria, typhoid, tuberculosis, or sub-acute rheumatism, because of the onset, which is characterized by a feeling of lassitude, vague pains, loss of appetite (with accompanying malnutrition and anemia), vertigo, headache, cough, and (less often) symptoms indicating a heart affection. The most constant symptom is a protracted fever (not recognized by the patient). Later the manifestations of embolism may show in the form of enlarged spleen, petechiae, tender cutaneous nodes, clubbing of the fingers, vascular embolism, purpura, and renal phenomena.

The fever is variable. It may be intermittant, or remain for weeks at 103 to 104 F. and then drop to normal for a time. Chills and sweating are noted throughout the course of the disease.

Anemia is usualy constant, but a leukocytosis is seldom present. This frequently confuses. When leukopenia is present there is usually a relative lymphocytosis. The tender painful cutaneous nodes (Osler's nodes) are a prominent symptom in many cases. Many writers mention the characteristic "Cafe au lait" complication and clubbing of the fingers—which differ from those seen in congenital heart disease, in being pale and showing no venous stasis.

Pain manifests itself in some of the embolic phenomena, in the bones and joints, and head.

Renal symptoms due to emboli are frequently marked.

Cardiac symptoms are usually not marked or greatly noted until late in the disease. This is especially true when there is a history of chronic valvular disease as is often the case.

In the subacute bacterial type these various symptoms develop to complete the clinical picture covering often a period of weeks and months. The ulcerative type is the above picture intensified and very much shortened.

The treatment is: early, complete, and prolonged REST. The maintainance of nutrition, and frequent moderate sized blood transfusions are helpful.

Here are three pathological specimens of subacute bacterial endocarditis with previous valvular damage.

No. 1 is a heart in which there is a marked mitral stenosis and aortic incompetency with aortitis. The mitral valve has recently been attacked by a vegetative endocarditis (syphilis not a factor).

No. 2 is a heart with a incompetent mitral valve, recently the site of a fungating mass of vegetation which extends to the mural endocardum.

No. 3 illustrates a similar condition engrafted on an old scarred aortic valve.

For illustration here is a briefed report. Case No. 8502:

Admitted July 31, 1926, complaining of "rheumatism, swelling of feet, my heart seems to flutter all of the time; I have a kind of a rash on my arms, it has been there a couple of weeks; also nausea and vomiting."

He had been gradually losing weight for the past year, and had been unable to work for six months. Previous to that time he was well. He quit work because he was tired and weak. He had been told that his tonsils were infected and were the cause of his rheumatism which had been bothering him since August, 1925. At that time he had swelling of the backs of the hands. At Christmas time he had swelling and redness of the dorsal surface of the right foot. This was lanced, and drained considerable pus for ten days.

On June 2, 1926, he consulted Dr. Ives of Yuma, Ariz., for tonsillectomy, and was told that this was not advisable because his temperature was 103 F. That same morning he had swelling of the right foot and was told that he had rheumatism. He was also told that his heart was just starting to go bad and was ordered, "go and be quiet." Within a week he was bedfast because of weakness. On direct questioning he admitted dyspnea gradually increasing for the past month. Pallor dates back a month. Denied precordial pain, but admited something that felt like a rod or a pencil sticking in the left chest—"just a dull pain." He had a chill that A. M. Had had no medication the past week.

Previous History

Admitted having had the usual childhood diseases; other than this, the patient was so ill that he was unable to give a very coherent history. However, he stated that he had been troubled with tonsillitus off and on for some time.

Physical Examination

An anemic white male, age 26, lying in bed and acutely ill.

Dyspnoea and orthopnia marked; movement of alae nasi and duskey pallor. Frequent hacking dry cough; emesis frequent of sour-smelling fluid. Pupils dilated and react sluggishly to light. The teeth show one plus pyorrhea. Mucous membranes pale. No attempt was made to express pus from tonsils because of nausea. Blood pressure 140/46, but sounds could be heard at 250/0. Transverse diameter of heart was increased to transversly. No thrill or shock. Sounds distant and muffled. Soft precordial friction at apex and a pleural friction (left) heard. Breath sounds distant and acites two plus. Oedema of feet and shins three plus. Tenderness on pressure over the lower third of left tibia. Slight oedema of skin of abdomen and chest. Petechiae on arms and legs.

Diagnosis

Subacute bacterial endocarditis; Pancarditis; Subacute fibrinous pleurisy, left.

He died twenty-four hours after admission before any laboratory findings could be obtained. The sudden death and the manner in which he died leads to the belief that he had a cerebral embolism. Permission to open the calvarium not obtained. His heart is speciman No. 3 you have just examined.

Pericarditis

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ASSISTANT SURGEON,
Los Angeles, Cal.

The subject of Pericarditis merits discussion by modern, scientific practitioners because it is the common and the obvious, that are prone to be overlooked by reason of their very simplicity. In these days of rapid advancement in the realm of scientific medical thought, we are kept so busily occupied with new developments, that the older time-tried ideas and methods fail to receive due consideration. ("Familiarity breeds contempt," was never meant to apply to the knowledge of disease; quite the contrary obtains in fact). It is only by frequently refreshing our minds on the common diseases that we avoid gross neglect in diagnosis and treatment.

Osler[1] states: "Probably no serious disease is so frequently overlooked as pericarditis." A study of the clinical records at the Boston City Hospital by Locke[2] showed that of 150 cases diagnosed at autopsy, only 27, or 17 percent had been recognized clinically.

In this connection a very pertinent remark is made by Landis: "This discrepancy between the bedside and autopsy findings is to be ascribed in many instances, to the fact that acute pericarditis is a terminal infection."

The condition may be primary or secondary, the primary is rare. The secondary usually follows one of the acute infections, particularly acute rheumatic fever and pneumonia. The pericarditis is not uncommon. Terminal pericarditis in chronic nephritis, gout, and chronic diseases of all sorts is probably more often present than is usually thought. Elywn[3] in a recent article brought out the fact that a "physiological" pericarditis may occur in uremia; that the inflammation and resulting exudate (fibrinous), are simply part of the general renal-failure picture, much the same as the "urea frost" on the skin, and that cultures of the exudate will fail to show organisms. Two cases whose hearts we have here tonight presented a picture much in keeping with this view. Their deaths resulted rom a cardio-renal syndrome with a terminal uremia, and in each case a pericarditis developed in the final week of illness. As the N.P.N. and Creatinine content of the blood were in excess of 300 mgm. and 3 mgm. respectively, in both cases, the uremic element was unquestioned. The most striking factor in these cases was the age, the third decade.

Pericarditis may occur at any age; males are more frequently affected than females. The types are:

1. Acute fibrinous pericarditis,
2. pericarditis with effusion, and
3. chronic adhesive pericarditis with chronic mediastinitis.

Symptoms

Pain is variable, and may be aggravated by pressure on the lower end of the sterum.

Fever is usually present but is so frequently a part of the primary condition that it is of little diagnostic value.

With marked effusion dyspnoea is a striking feature, and dysphagia, cough, and even aphonia may accompany.

The physical signs vary with the type. In the advanced fibrinous type the fremitus and friction rub are distinctive, best heard over the right ventricle.

With effusion there may be bulging of the precordia, with an impulse that is either wavy and diffuse or absent. The pear-shaped outline of dullness is fairly characteristic, and the heart tones are muffled and distant. Elwyn[4] feels that auscultation is frequently of no help, and contrary to the common teaching, he states that, " . . . . the heart sounds can be propagated undiminished through a large layer of pus."

The *x*-ray is usually definite, but as we will endeavor to show later, it may be misleading.

Chronic adhesive pericarditis may be either the simple type, involving only the peri and epicardial layers, or it may be complicated by a chronic mediaastinitis, with adhesions between the pericardium, the pleura, and the chest wall. The simple type gives rise to few if any symptoms or signs; the second type is quite variable. It may show itself simply as an enlarged heart, or there may be a P. M. I. that is fixed, or of increased extent, systolic retraction of the interspaces at the apex and between the eleventh and twelfth ribs posteriorly (Broadbent) and diastolic shock. Pain is not usually mentioned as a common symptom in this type, but if you will recall the case presented here six months ago, by James H. Col. Mattison,[5] you will recall that pain was one of the most striking features.

The so-called Picks disease is a group of cases in which there is recurring ascites with chronic peritonitis, and great thickening of the capsule of the liver.

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[1] Principles and Practice of Med. Osler and McCrae, 9th Edit. Page 758.
[2] Boston Med. and Surg. Jour. CLXXV. No. 17.
[3] and [4] Elwyn, Herman, Am. Jour. & Record, July 21, 1926.
[5] "Cardiolysis for Mediastino-Pericarditis" (with Case Report), Surg. Gyn. & Ob. James Mattison, M.D., Dec., 1926.

Treatment

The special indications in the purulent and adhesive forms are fairly definite. Incision and drainage should be done as soon as the presence of pus is determined. It is well to remember that every effusion is not pus, and also that pericardial efusion of great extent is unusual in general anasarca. Even with the assistance of the skiagraph it is notoriously difficult to distinguish between effusion and dilation. On paper the differential points are striking enough, but in practice their application is too often entirely disappointing. Two cases here were recently subjected to needling in an effort to relieve them of marked orthopnoea. In both the skiagraph supported the clinical diagnosis of effusion, and yet the operation was in reality peracentesis cordis instead of paracentesis pericardii. It is well not to regard the procedure too lightly, and without very definitely positive indications it is questionable whether it should be used at all. The prick of a needle in an already weakened heart may be the cause of a fatal ventricular fibrillation. We have had one such case here.

In the marked cases of adhesive pericarditis cardiolysis offers the best chance of relief. This procedure was well illustrated before this society six months ago, by Col. Mattison.

The Large Heart

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Los Angeles, Cal.

The large heart is developed not born. The largeness is hypertrophy—the result of compensation—a beneficial affair.

These four large hearts and some details of their history are shown because they are common incidents in clinical pathological work.

(A) *HIGH BLOOD PRESSURE* (Hypertension)
(Hospital Record No. 7541)

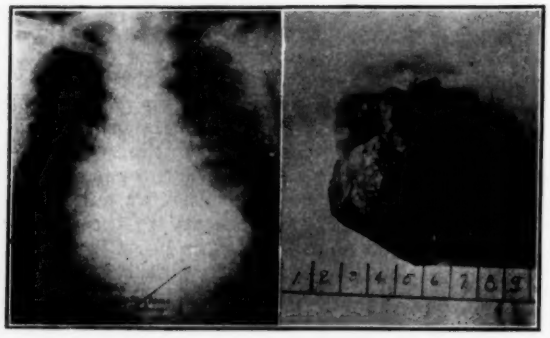

Fig. No. 1
Chest X-ray Plate

Fig. No. 2
Pathological specimen.
Wt. 22 oz. (normal 10) 7½ x 5 x 4 in. (Normal 5 x 3½ x 2½, L. V. wall 1½ in. thick normal ½)

The cause of death in this case was cardiac failure (loss of compensation) caused by a long continued high (200/100 μ. μ. hg.) blood pressure. This heart was 58 years old. Its owners was obese (200 lbs.) and short (5 ft. 6 in.). He had been a "high liver" and was a dynamic worker.

Associated conditions were:

(1) Nephritis, (Urine: low specific gravity, albumin +, hyaline and granular casts. Blood: creatinine 2.7 (normal 1.5), N.P.N. 49) normal 30). Anasarca due to both heart and kidney insufficiency.

(2) Arteriosclerosis (residue of an old right hemiplegia).

In this, the oldest of our specimens, much time elapsed (more than 20 years) between onset of failure and death. We base that opinion upon the history of such subjective symptoms as morning periodic headaches (hypertension), shortness of breath, left chest discomfort (angina) after exercise in the patient's early forties.

The late or preagnoal symptoms were typical: cyanosis, orthopnea, anasarca and indigestion.

This heart enlarged to compensate for mitral valve disease (endocarditis) but finally failed, losing its owner's life at 33 years of age. A history of acute polyarthritis at eighteen and a tonsilectomy at thirty-one (too late!) indicates the origin of the trouble. The patient entered this hospital June 7, 1926, for the third time in one and a half years for "decompensated heart."

(B) *V. D. H. (Valvular disease of Heart)*
(Hospital record No. 5764)

Fig. No. 3
Chest X-ray Plate

Fig. No. 4
Pathological specimen
Wt. 25 oz. 6½ x 5½ x 5½. L. V. Wall ¾ in.

To demonstrate how errors can be made in diagnoses of heart disease: This x-ray plate (Fig. 3) caused the clinical diagnosis of "pericardial effusion" to be made by Dr. Shawhan and supported by us. We did an unsuccessful paracentesis in the attempt to relieve the embarrased heart.

Note that the mitral valve edges do not approximate and are markedly thickened just back of the free edges. The early symptoms of cardiac failure (dyspnea and angina) were missing in our records; but blood spitting, orthopnea, auricular fibulation (pulse deficit), cynosis, vomiting and finally pulmonary edema were all present.

Just because an individual has had syphilis is no reason that it must kill him. This heart died from inability to carry on its work. It did not last long enough nor have force enough to rupture the aortic aneurysm (see Fig. 6) in its forty-eight year old owner.

The clinical diagnosis of syphilis was made because of a 2 + adenopathy, pupils which were irregular and sluggish, an old shin ulcer which healed rapidly with Hg. and K. I., and unequal deep reflexes. Wasserman 4 + (thrice made) was substantiating evidence. His large failing heart was due to the trypanosma pallida.

(C) *SYPHILIS* (*Hospital Record No.* 8531).

Fig. No. 5
Chest X-ray Plate

Fig. No. 6
Pathological specimen
Wt. 32 oz. 8 x 5½ x 5 in. L. V. Wall 1 in.

There was a double murmur over the whole chest with maximum intensity at the aortic and mitral areas. The preagnoal signs and symptoms were orthopnea, cyanosis, anasarca, and hemoptysis.

While the semi-lunar valve is competent the mitral valve is not. Focal infection (non-specific) gave this man a crippled mitral valve which caused his death by making the heart do more work when its muscle was already crippled by syphilis.

A complication of diseases killed this man.

1. V.D.H. (mitral),
2. hypertension (cardio remal), and
3. pericarditis (terminal).

Its age was thirty-six years. Its owner suffered drowsiness, dyspnea and invalidism for eight years. Physical findings during last months of life were: jaundice + +, palor, orthopnea, blood pressure 170/120 μ. μ. hg. prolonged systolic murmur at the apex transmitted to axilla, retinal hemorrhages, epistaxis, albumin and hyaline casts and secondary anemia. Blood: creatin 5.7, N. P. N. 144.

Seven days prior to death there developed the new-leather-squeek ("cuir de neuf") friction rub over the heart, denoting fibrinous pericarditis—the terminal type.

The pericardial sac contained 200 c.c. straw colored fluid (normal 50) and the surfaces were covered by a fibrinous exudate adherent especially about the base of the heart.

The large heart occurs in the order just cited. The hypertensive heart lives the longest, the V. D. H. the shortest time. Syphilitic heart in between. Each when failing produces practically the same end symptoms.

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(D) *PERICARDITIS* (Terminal)
(Hospital Record No. 8148)

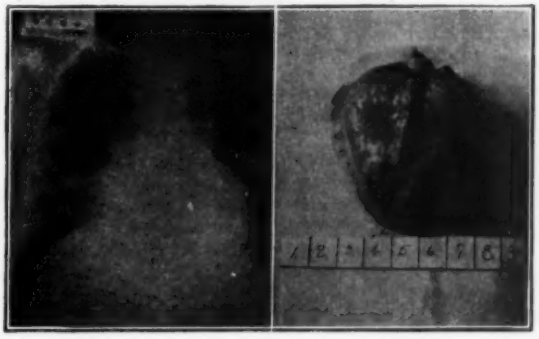

Fig. No. 7
Chest X-ray Plate

Fig. No. 8
Pathological specimen
Wt. 28 oz. 7¾ x 5½ x 4½ in.
L. V. Wall .1 in.

Relation of the Gonads to the Other Glands of Internal Secretion*

H. Lyons Hunt, M. D., L. R. C. S.
New York

There is a vast array of facts, based on clinical and experimental observation which show that the reproductive organs are closely connected with other endocrine glands.

It used to be thought that a woman was a woman because of her ovaries alone; a man a man because of his testicles alone.

In the light of modern knowledge it has become evident that masculinity as well as femininity is dependent upon all the internal secretions.

In an address delivered by the writer before the West Side Clinical Society of New York City, on December 10, 1925, he called attention to the close relationship between the internal secretion of the prostate and that of the testicles, and cited cases to demonstrate that both sex desire and sex function were dependent upon the combined secretions; that impotence was a result of failure of either secretion.

The following instructive case was cited:—

Mr. C. L. G., a bank president, aged 57, an American, was normal in every way except that for thirteen years, or from the age of 44, he was compelled to use a catheter because of an enlarged prostate. Sex function and sex desire during this thirteen years was diminished. On Feb. 5, 1923, prostatectomy was performed. Following this operation sex desire and sex function were completely lost. On June 14, 1923, a slice of ram's testicle was transplanted according to the old technic. The gland sloughed out and the results were negative. On July 13, 1923, a second gland transplantation was performed, which was a take; i. e., it did not slough out. But no result on sex function accrued. On Nov. 20, 1923, another attempt at gland transplantation was made. This time a section of bull's prostate was employed. This gland sloughed away, but during the period of necrosis the patient experienced sex desire and erection. Owing to the fact that this gland sloughed away another attempt was made on April 30, 1924, the effects of which were negative. Finally, on June 3, 1925, a fifth gland transplantation was undertaken. This attempt, like the former ones, was unsuccessful. Going more into detail in this case, the patient came for one definite

* This is the third article in this interesting series.

purpose; namely, to recover his sex life. He was a man about 6 feet 1 inch in height, weighing approximately 240 pounds, obese, anemic, his mind functioning sluggishly. It will be seen from the above operations that the transplantation of testicular tissue was a "take" in one instance; that is, it did not slough away. Its effect on the sex organs, however, was nil. But, on the other hand, its effect on the man's general vigor, metabolism and mental activity was remarkable. He lost approximately 60 pounds in weight, his anemic appearance vanished, and from being sluggish he became active in every way except in the way he desired. He improved to such an extent that his physician insisted on his return for a further gland transplantation, hoping that the impotence, which was his chief complaint, would disappear. Only in one instance did the return of potency manifest itself and this was immediately following the transplantation of the prostatic tissue.

The pineal gland, or epiphesis cerebri, undergoes involution at puberty. It has been assumed that the function of the pineal secretion is to inhibit overdevelopment of the sexual system.

The writer believes that a more logical deduction of the involution of the pineal gland is that it is compensatory to the sex glands, for we find that this same gland undergoes an apparent hypertrophy during the involution of the sex glands at the climacteric.

In 1898, the pediatrist Heubner described a case of precocious sexual and somatic development in a boy four and one-half years old. Autopsy revealed a teratoma of the pineal.

In 1907, Marburg collected forty cases from which he sought to establish the doctrine of "macrogenitosomia praecox" due to the pineal dysfunction and characterized by precocious sexual, somatic and mental activity.

It is believed that the pineal body begins to atrophy at the seventh year, but that portions of it are still active in adult life.

It is noteworthy that the sexual precocity connected with pineal tumors has been recorded only for boys.

It has been observed that disturbances of pituitary function—either by tumors in the gland itself, or by pressure of brain tumor near it—are frequently associated with sexual anomalies. Cessation of menstruation in the female, and impotence in the male are recognized initial symptoms of acromegaly.

Hypopituitarism appears to be the cause of syndrome described by Frohlich as associated with the pituitary body—"dystrophia adiposo-genitalis." The striking features of the syndrome are adiposity and genital atrophy. With these may be associated either an enlarged or diminished stature. Sexual development is always delayed and may remain in abeyance, producing a permanent condition of infantilism.

Glassburg wants to limit the term "dyspituitarism" to the exclusion of acromegaly on the "hyper" side and infantilism on the "hypo" side, but to include all other disorders of pituitary secretion. Cases of dyspituitarism will show signs and symptoms of both hyperactivity and hypoactivity, depending on the stage of the disease. Dyspituitarism is not necessarily accompanied by an abnormal sella turcica. Glassburg presents a typical case in which the bitemporal headaches and muscular fatigue were relieved by pituitary extract, 4-8 grains a day per os. The administration of the extract at the menstrual period resulted in increased flow, and therefore the extract should not be administered at that time.

Biedl tells us that the changes in the sexual organs observed in acromegaly, and especially the cessation of the menses in women, are among the earliest symptoms of the disease. Later on, there is a cessation of sexual desire, sterility and atrophy of the sexual glands. Not infrequently the secondary sexual characteristics disappear and there may be even a partial return to the hetero-sexual type. Many authors believe that the changes in the sexual glands are a causative factor in the production of acromegaly. Moreover, a large number of physiological, pathological and experimental facts show the influence of the sexual glands on the hypophysis. The latter regularly enlarges during pregnancy, and during lactation it returns to normal. Incontrovertible evidence of hypophysical hypertrophy during pregnancy has been supplied.

From the known inter-relationship between the hypophysis and the sex glands, as well as from the fact that atrophy of the sexual glands is invariable at some stage of acromegaly, it seems that suppression of the function of the sexual glands plays a part, first in the causation of the clinical complex of acromegaly, and, afterwards, in the furtherance of the growth by which the disease is characterized.

Another pathological condition associated with the hypophysis is gigantism. This is an anomaly of skeletal growth which leads to a height of the body in excess of the average dimensions of the race, and is associated with characteristic morphological and functional derangement.

Gigantism attacks men more often than women. It usually begins at the age of puberty. The most remarkable changes in gigantism are those presented by the sexual glands. Reduction of sexual activity, absence of menstruation in women, sterility in both male and female, are among the clinical symptoms of gigantism.

There is considerable evidence in favor of the theory that the adrenals are related to the sex function. Some authorities are of the opinion that the cortical secretion is concerned with the differentiation and growth of the sex cells. In young males especially cases have been reported in which precocity has been associated with cortical tumors.

There is evidence that enlargement of the suprarenal cortex runs parallel with the development of sex characters and instincts. In congenital hypoplasia of the suprarenals extensive changes in both the generative portion and the interstitial cells of the testicles have been observed.

Bell states that when any of the organs of masculinity—producing internal secretions—become abnormally active in women, the ovarian secretions are antagonized or inhibited, partly or completely, and the metabolism is directed towards the necessities of masculinity.

From the experience of both Stanley and the writer, devoted to gland transplantation in both men and women, Bell's conclusion would seem at fault. Our own deductions, drawn from a combined series of over a thousand transplantations, are that the hormones, whether from the testicle or ovary, are so alike that it matters little whether the case receives ovarian or testicular gland tissue, regardless of the sex of the patient.

Cases of "true hermaphroditism" are rare; but women with a larger share of masculinity than is normal are extremely common. Many of them have hyperplasia of the suprarenal cortices or of the pituitary; and atrophy of the ovaries is secondary to the primary changes in the other organs of internal secretion which are responsible for the development of masculinity.

In this connection I want to call attention to the following case, reported in 1922 by Loeser:

From their tenth year two sisters showed development of a penis and a masculine distribution of hair.

Pneumo-radiography of the abdomen disclosed hypertrophy of both adrenals.

Suprarenal insufficiency has received recognition in Addison's syndrome, in which there is an extensive derangement in the general metabolism with general asthenia. Amenorrhea is always found in this disease. It has been suggested that excessive vomiting of pregnancy is due to suprarenal insufficiency.

The relationship of the testicle to the suprarenal is clinically shown in the case of Addison's disease reported by the writer in the second article of this series, which appeared in the November issue of this journal, titled "The Effects of Puberty."

Dercum calls attention to the remarkable relation between the adrenal cortex and the sexual apparatus. For instance, female children have been observed in whom the external genitalia revealed appearances approaching the male type, such as a clitoris of abnormal size, or even a penis with a male urethra, labia suggesting a scrotum, or labia partially united. Subsequent examination, however, revealed female internal organs, but great enlargement of the cortex of the adrenals. Other children, again, who present no peculiarities at birth or for months or several years thereafter, begin after a time to develop a decided amount of fatty tissue. Very frequently the child begins to grow abnormally. A change in disposition and demeanor is also noted. Precocious sexual development manifests itself. Copious growth of hair makes it appearance on the pubis and in the axillae, and, in boys, moustache and beard begin to grow. Erections and emissions are noted. The voice approaches the adult character. In girls the external genitalia likewise assume the adult appearance. The mammary glands and nipples grow, menstruation may make its appearance. The obesity in some cases is very pronounced, but there is never any pituitary enlargement as in Frolich's disease. If the cases come to autopsy, an adrenal tumor is invariably found.

In older individuals, but never after the menopause, similar characteristics develop. A woman, previously apparently well, begins to suffer from menstrual disturbances, irregularities, and finally, cessation of the periods. Sometimes nausea and vomiting suggest a beginning of pregnancy. Very early there ensues an excessive adiposity, and at the same time a remarkable increase in muscular strength. Also a change in disposition is noted. The woman, formerly quiet, is now active, self-assertive, over-bearing, excitable and easily angered. Sexually the patient may be strongly excitable. In due course, growth of hair, pronounced and masculine in character and distribution, makes its appearance. In adult women, as might be expected, the external genitalia remain unaffected.

After a variable period, the obesity begins to lessen and soon rapidly disappears; the former muscular strength is replaced by weakness. The aggressiveness, the sexual excitability, give way to depression and sexual indifference. Death is preceded by an increasing asthenia, gastric and intestinal disturbances, epileptiform or tetanoid convulsions.

In some cases, associated with enlargement of the adrenal cortex, enlargement of the parovarium has been found. The fact is interesting, as the parovarium, like the adrenal cortex, arises in the Wolffian body.

There is little evidence that the thymus gland exercises any significant influence on the gonads. Once genital activity is established, the thymus undergoes atrophy and plays no part in the metabolism of reproduction, though Bell believes that the thymus like the mammae, has a definite relationship, more or less indirect, to the production of somatic and genital maturity.

It has been found, however, that if thymectomy be performed before puberty, there is a rapid development of the male genital glands. It appears, therefore, that the thymus either inhibits the development of the gonads, or that their development causes atrophy of the thymus.

Some investigators advance the theory of an intimate physiological association between the thyroid gland and the female organs of generation. This theory is based on the fact that the thyroid gland in women is larger than in men, and that it increases in size during menstruation and pregnancy.

There is direct evidence of a relationship between the pancreas and the gonads.

In Stanley's series of a thousand cases of testicular injection, six cases had a persistent glycosuria at the time of injection. This glycosuria disappeared after injection and its absence was noted for a period of months.

The writer in one case of diabetes in his series of four hundred cases of transplantation noted the following results: The case of a physician from South Dakota, age fifty-three, male, American, father of three children.

Family History—Negative.

Personal History—Meals regular (two daily), stools normal. Exercise—not regular; Drugs—sedatives for pain and varying doses of insulin; Alcohol, none; Tobacco, one cigar daily; Sexually subnormal; Sleep poor; Dreams; subject to frequent nightmares.

Past History—Negative except for two laparotomies for excision of gall-bladder and the appendix.

Present complaint, diabetes mellitus (Sugar 5 per cent), associated symptoms sciatic and intercostal neuritis, marked loss of weight and general debility.

This case had spent practically four years in sanitariums and hospitals endeavoring to regain his health.

Following transplantation there was a disappearance of glycosuria, neuritis and the patient gained some considerable weight. Some months following transplantation I received a letter from this patient stating that he was still in good health and requesting an accurate description of the technic of the operation as he had benefited so much that he wished to transplant on a number of his own cases.

Hoskins found, clinically and experimentally, that hypothyroidism results in a sex depression that may be so pronounced that it amounts to complete impotence. He quotes two cases, men, aged 25 and 30 years old respectively, after having attained normal adult sexual condition, developed myxedema, which was followed by a complete reversion to sexual infantilism, and, of course impotence.

Many other cases of an association of infantilism with thyroid deficiency are on record. The fact that in such cases the sex depression can be ameliorated by thyroid medication, indicates that hypothyroidism is the actual cause of the condition.

In general, we are able to state that clinical evidence supports the idea that the gonads are affected by the thyroids.

Dercum stresses one functional relationship, which is observed in the female. It is the relation between the function of the ovary and the thyroid gland. The thyroid enlarges in the female at puberty; it enlarges also upon marriage and again upon pregnancy. Further, the involution of the ovary at the time of the menopause has a depressing effect upon the thyroid and possibly upon the pituitary; many women grow stout at this period.

McCarrison emphasizes the fact that the thyroid apparatus from the earliest period of its involutionary history has been an essential part of the digestive tract, and so intimately related with the genital or-

gans as at one time to have formed an integral part of them.

In its most highly developed form in the human subject it still retains its fundamental function of profoundly influencing nutrition, growth and reproduction, and is itself markedly influenced by disorders of the alimentary tract and genitalia.

During fetal life the developing thyroid is peculiarly susceptible to influences which impair the mother's thyroidal resources. It responds to these influences by undergoing hypertrophy or hyperplasia, or succumbs to them by undergoing cell-death and fibrosis.

It does not appear that nature intends the organ to attain to full functional perfection until some months after birth. With the cessation of suckling, and with the commencement of taking more solid food, the thyroid apparatus of the child begins to act for itself, elaborating its secretion from the raw materials of food and responding to every call which is made upon it by the processes of increasing growth and the maturation of the body functions.

Throughout child life the thyroid gland is in a state of constant activity, and at puberty, and with the onset of menstruation, the physiological capacity of the organ is strained to the utmost. At this time hypertrophy is likely to occur. The parathyroids share in this increased physiological action.

During menstruation the special function of the apparatus in maintaining the plasticity of the blood and governing calcium metabolism is called upon, since there is a great loss of calcium in the menstrual flow.

The efficient development of the sex organs and the stimulus to mental and physical growth which they in their turn provide, is dependent upon the thyroid's functional perfection.

The sexual act increases the gland's activity, and this organ is liable to swell in consequence, a fact well known to primitive races.

McCarrison holds that great benefits are conferred on woman by child-bearing, and that these benefits are due, among other causes, to the maintenance of healthy thyroidal activity.

It is maintained that conception is to a great extent dependent on an adequate supply of thyroidal substance to the organism; pregnancy often follows thyroid feeding in sub-thyroidic married women.

Increasing years bring to the thyroid the changes incidental to advancing life, and the gland undergoes a process of slow atrophy. With diminishing vital functions the thyroid's work ceases to be of the same importance, and as the fire of life dies down, the stimulating draught of the thyroid becomes more gentle.

Thus far we discussed the relation of the pineal gland, the pituitary, the thymus, the adrenals and the thyroid apparatus to the gonads. The more we advance in the study of the internal secretions, the more we become aware that the different glands control definite physiological functions and influence, fundamentally, man's somatic constitution as well as his psychic character.

This becomes most patent in pathological deviations, as, for instance, in eunuchoidism and sexual infantilism, in which the sexual function manifests itself not only somatically by a stunted development of the genitals and the secondary sex characteristics, but also in an alteration in the psyche, a change in volitions, a diminution or absence of the libido.

Proceeding from these pathological deviations, some authors have attempted to arrange certain groups from an endocrinological point of view and to establish a pituitary, thyroid and adrenal type.

Weil suggests that such a schemitization is bound to lead to one-sidedness and exaggeration, tending to regard man only as the product of the endocrine glands and to disregard the influence of heredity and the mode of living.

We must proceed in investigating the correlation of the different glands, in assigning the endocrine system its proper place in the whole organism, and in working out a successful organotherapy.

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Summer and Winter Sunbaths for Babies

Pigmentation or tanning of the skin and not sunburn is the end for which to strive in giving sun baths to babies. No absolute rule can be laid down as to how long this will take. The baby with fair skin will require shorter exposures at first in order to avoid sunburn, but may be given more frequent sun baths, possibly twice or even three times a day in order to hasten pigmentation. The baby with dark hair and dark skin will pigment more rapidly and longer exposures can be safely given. Negro babies may have twice as long exposures as white babies. Older children can usually have longer initial exposures than young babies. A general schedule such as this may be followed fairly closely, but no schedule will serve for all babies and common sense must be used at all times to avoid sunburn.

During the spring months sun baths are best given between ten and one, but during the hot summer months they should be given earlier in the morning between eight and eleven. Once the child's body has become well tanned he can play in the sun several hours, provided he wears a light cotton shade hat. During the extreme heat of July and August it is better that the child should play in the shade between eleven and three. A child accustomed to complete sun baths in the summer can continue them late into the fall and can have partial sun baths on all sunny days in the winter. Outdoor sun baths may be started as described at any time during the spring, summer or fall, but the duration of these initial exposures must depend on the season, those of the spring and fall being longer than those of July and August.

In the northern States during the winter months from November to March it is often difficult to give outdoor sun baths to very young babies. The heat of the sunlight which we would so gladly dispense in July and August must be used to its greatest extent in winter and spring. It has been found that the temperature in winter may be forty or more degrees higher in the direct sunlight in a place protected from the wind than in the shade. Babies born in the winter should sleep as often as possible outdoors in the sun during the morning nap and the sun be allowed to shine on the cheeks and face. During these months, moreover, partial sun baths may be given to babies indoors lying inside an open window. The window may be opened at the top or at the bottom, but it is important that the baby lie in the patch of sunlight which has come through the open space. During the indoor sun bath it is best to close the doors of the room to avoid drafts. The same technique may be used for the indoor sun bath as for the outdoor. Babies who have become accustomed to indoor sun baths in winter can begin outdoor sun baths in February or March.—(*U. S. Department of Labor*).

Carcinoma of the Rectum in the Young

Report of a Case and Review of the Literature

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S. E. Dale, sixteen years of age, was brought into the service of Dr. Benjamin Schwartz at the St. Mark's Hospital on August 19, 1926.

Family History: Negative.

Personal History: Progressive emaciation, weakness, anemia, alternately diarrhea and constipation, and at times the stools were bloody. On August 19th, 1926, an examination by Dr. Schwartz revealed the following:

The patient is a young individual about the age above stated. Maximum weight 117 lbs. Present weight 97 lbs.

Blood normal. Urine normal.

Cranial nerves negative. No Babinsky, no Koernig present Pupils react to light and accommodation. Reflexes normal.

Head and neck negative. No cervical glands palpable.

Heart negative. Muscle tone poor.

Lungs negative to ausculation and percussion.

Skin sallow, dry and pale. No petechae or superficial veins observed.

Genito-Urinary: Patient has difficulty in voiding at times especially at the beginning of micturition. Urine was negative except as to slight traces of albumen and triple phosphates. No microscopic findings.

Gastro-intestinal: The patient was constipated for a few months previous to the plesent illness, then diarrhea set in. This was followed by frequent stools with some bleeding (not very marked).

Appetite was very good, no nausea or vomiting present. Abdomen slightly distended. There was no painful areas anywhere.

The inguinal glands were palpable.

An examination of the rectum revealed the following:

A hard palpable mass 2½-3 inches away from the anal orifice. The tumor-like mass seemed to be on the anterior wall of the rectum, possibly three inches in each diameter. It seemed to be adherent to the prostate and other structures.

Diagnosis: Carcinoma of the Rectum.

The case was referred to Dr. Gouverneur M. Phelps, attending surgean at St. Mark's Hospital, who, after having examined the patient with the proctoscope, removed for purposes of examinaton, three small pieces from the tumor mass. He found on the anterior wall of the rectum, three inches above the anus, a stony hard mass about the size of a lemon. On its surface was a crater-like ulcer, three cm. in diameter and one cm. deep. The surface was necrotic and bled readily. Laboratory examination of the pieces removed, revealed the following:

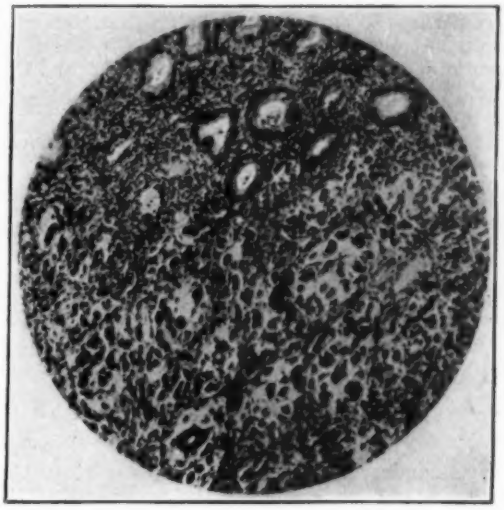
The three small masses are firm and white. One of them is bordered by brown tissue.

Microscopic section shows epithelial-like cells with tubular arrangement, just beneath the mucous membrane.

Diagnosis: Adeno-carcinoma.

Dr. G. M. Phelps later performed a colostomy in the left inguinal region. The sigmoid and all the adjacent parietal peritoneum was everywhere studded with hard round masses, evidently metastases from the rectal growth. The meso-sigmoid was one cm. thick, also due to the Carcinomatous involvement. The abdominal cavity contained two liters of straw colored fluid.

The outstanding feature in this case is, that the patient had hardly any tangible symptoms except the progressive loss of weight, which he did not notice, constipation which was not so very marked, followed by diarrhea, also not very marked. The reason he consulted Dr. Peter Schwartz, who referred him to the hospital, was the occasional bleeding from the rectum. The doctor after examining the patient carefully, found the mass in the lower bowel. The patient was practically free from symptoms up to six weeks previous to admission. In



Portion of intestine

view of the fact that there are relatively few cases of Carcinoma of the rectum in the young, it was thought advisable to review the literature on the subject.

According to Phifer[1], the etiology of carcinoma of the rectum is as follows:

Etiology: In the young, as in the adult, intestinal carcinoma of the lower tract seems to have a predeliction for the sigmoid. This is probably due to the fact that this region is more adapted as a place where intestinal contents could stagnate. The rapid evolution of these cancers is very striking, from the time of the first symptom until death, rarely more than seven or eight months elapse.

Symptoms: The early symptoms are very obscure and vary with the situation and ulceration involved. They are constipation, diarrhea, tense tympanitic abdomen, gastro-intestinal disturbances, pain, melena, and intestinal occlusion. Generalized pain, over the entire abdomen is the earliest symptom. The well developed musculature of the sigmoid predisposes it to spasm, which causes occlusion in cases of carcinoma. Rectal palpation usually does not furnish any clear indications. Of 49 cases of carcinoma of the rectum found in the literature only seven were preoperatively diagnosed as cancer; one as uncertain; one as invagination; two as obstruction; one was a new born monster; thirteen were found postmortem; twenty-three no diagnosis. The age generally excluded the idea of cancer.

Bernouille[2] in 1907, reviewing fifty cancers of the digestive tract in subjects less than twenty years old, found twenty-nine involving the sigmoid or rectum. In a careful search through the literature Phifer[1] found forty-nine cases of carcinoma of the rectum or the sigmoid in children and adolescents under twenty years old. Twenty-three males, thirteen females, thirteen sex not stated.

under 1 year (monster)	1
from 1 to 5 years	0

6	" 10	"	1
11	" 15	"	22
16	" 20	"	25
	Total		49

Steiner[3] in 1865, stated that Henning observed but 12 cases of cancer among 1,000,000 living children under the age of 15 years, 6 between 5 and 10, and 6 between 10 and 15, Von Bergman[4] says that the rectal carcinoma occurs in children even under the age of ten and thinks that it may perhaps be explained by the frequency of adenoid growths in children, Weinlechner, in 5,279 cases of carcinoma observed only 18 among children up to 14 years of age. Feldner in 914 cases of carcinoma met with only three up to the 16th year.

Rose and Carless[5] suggest the following classification of malignant tumors of the bowel:

I Epithelial
- a. Squamous cell
- b. Epithelioma

II Cuboidal or Spheroidal
- a. Scirrhous
- b. Fibrous carcinoma
- c. Hard
- d. acinous

III Columnar
- a. Cylindrical
- b. Malignant
- c. Adenoid carcinoma

IV Medullary
- a. Encephaloid
- b. Soft
- c. Acute

J. R. Pennington[6] finds in a series of 7,174 cases, that the majority of subjects were between the ages of 40 and 75 years. 1,442 from 41-50; 2,072 from 51-60; and 1,783 from 61-70 almost 75 per cent between the ages of 41-70. On the other hand, 235 were less than 30 and only 40 were less than 20 years of age. Malignant growths of the bowel have been found in subjects between the ages of 10 and 20, but these are relatively rare, for example:

11	years	of	age	2
12	"	"	"	5
13	"	"	"	2
14	"	"	"	3
15	"	"	"	3
16	"	"	"	2
17	"	"	'	7

Warthin[7] finds in a series of 2,000 cases of malignant growths, examined at the University of Michigan, only 195 between the ages of one and thirty. The only ones in which the rectum was involved were two of 29 and 30 years. As regards the site of the malignancy in the rectum, of 1,670 cases the growth was found in the ampulla in 1,250 and the anal canal in 178. In the rest they were higher up in the bowel or at the recto-sigmoid junction. The anterior wall is generally involved—487 of 824 cases; the posterior in 250 cases; and the lateral wall in only 87 cases.

In a brochure issued by the Metropolitan Life Insurance Company entitled 'Carcinoma Mortality Among Insured Wage Earners and Their Families" for the years 1911-1922, we find that carcinoma of the peritoneum, intestine and rectum ranked second in numerical importance among the males, and fourth among the females. They were responsible for 11,077 deaths—a crude rate of 8.6 per 100,000, or 12.3 per cent of the total cancer mortality.

Rosser[8] writes "one cannot but be impressed with the number of cases having a history of piles for years before malignancy appeared. The proportion of cases of carcinoma with hemorrhoids varies from 3.75 per cent in Kocher's clinic to 38 per cent in Zinners. Carcinoma usually occurs above the zone affected with hemorrhoids.

With improvement in operative technic in recent years, the percentage of operable cases has materially increased. At the Mayo clinic the percentage rose from 51 per cent to 71.8 per cent while the operative mortality decreased from 17.7 to 12.5 per cent.

J. M. Lynch[8] states that surgical treatment of carcinoma cannot be standardized. Each case presents an individual problem. He makes a routine study of the blood chemistry, kidney function, and thorough physical examination before operation. Half hour before the patient is brought to the operating table a blood transfusion is made, and a donnor is held ready in case a second transfusion is though advisable. His operative technic is as follows:

An incision is made from the back of the anus to the sacro-coccygeal joint. The coccyx is removed and the bowel is separated from the sacrum up to the promontory. The patient is placed in a recumbent position, and the abdomen is opened. Both leaves of the mesentery are cut. The superior hemorrhoidal artery is ligated, and the tumor with glands and fat is separated by dissection; the anterior rectal wall is separated and the lateral ligament are clamped and tied. Then one of two procedures is followed:

I. The bowel is divided and the patient is left with an artificial anus; the caudal end is packed down in the pelvis; the peritoneal floor is repaired and the abdomen is closed.

II. The bowel is pulled through the posterior opening, the abdominal wall is closed; the tumor is removed from below, and the sigmoid is implanted in the canal.

Concerning radium therapy, Kelly gives the following resume for the preceding decade:

I. In cases treated with radium alone, actual cures 8.5 per cent, with palliation 69.7 per cent, about half of the latter living over 18 months.

II. Colostomy plus radium gave the fewest cures—6.3 per cent with palliation 68.7 per cent, 45.5 per cent living more than 18 months.

III. Radical surgery plus radium. Here the greatest percentage of well subjects was 17.5 per cent over half were improved, and the most lived over 18 months.

In view of the infrequency of carcinoma in the young from above, it is essential that the attending physical make a thorough examination manually and protoscopically of every case, young or old, involving the lower bowel to ascertain the exact condition he is confronted with, particularly if bleeding be present.

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Bismuth in the Treatment of Chronic Syphilitic Endarteritis

Jiri Serf, in *Ceska dermat.* 6:75, 1924, says that treatment with a compound of iodin, bismuth and quinin gives excellent results in cases of syphilis of the aorta and aneurysm. The treatment consists of two series (from four to six weeks apart) of twelve deep intramuscular injections of 3 c.c. each, twice a week. The injections are painless and well tolerated. Improvement in symptoms and the Wassermann reaction is rapid. A weak myocardium slight hypertension and marked hypertension, are contraindications.—(*Arch. Derm. & Syph.*, Dec., 1925.)

Educational Personnel Administration*

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There are in American colleges today something around a half million students. Of these perhaps 200,000 are in freshman classes. Approximately 70,000 of these freshmen will never reach the sophomore year. Only about 30 percent of these 200,000 freshmen will receive a college degree. In other words over a third of the beginning college class will be eliminated from the American college before sophomore standing is attained, another third will be eliminated before achieving a college degree, and less than a third will receive any kind of a college degree.

The money cost of the fearful maladjustment which these figures connote is in the aggregate staggering. In a recent issue of *The Journal* of Personnel Research Professor Terman reports that over $300,000 is spent annually by a famous Western college on students who are known to be failing or who are on probation. This expenditure amounts to over 10 percent of the instructional budget of the whole university in question. Dean Johnson of the University of Minnesota reports that of 1100 Freshmen entering the College of Liberal Arts in 1920 only 9 percent graduated in four years, 15 percent are still enrolled in combination courses, and 58 percent have left the institution. All of those who have left the institution left because of incompetency or because their records were unsatisfactory. A committee of The Society for the Promotion of Engineering education finds that in engineering colleges the elimination rate is high and steadily growing higher. On a basis of a study of more than forty representative engineering colleges it is found that graduation from engineering colleges is a reality for less than 30 percent of the students entering these colleges.

It is safe to say that for a majority of the students who leave college in academic disgrace, the college experience is not only a failure, but positively harmful. It is difficult to see how American colleges can go to legislatures or to the people, seeking more money for higher education when we are so obviously wasting, if not actually producing harm, with so large a proportion of the funds which are already available.

The financial wastage, however, large as it is, is by no means the most regrettable aspect of the failure of the American college to pick the proper subjects on which to expend its efforts. More important by far than the financial waste is the loss of time and the mental and spiritual degradation suffered by over 70,000 innocent freshmen who are annualy sacrificed by the American college to a false fear of standandization and to a medieval faith in mystical and miraculous powers which colleges do not possess. No one can estimate the sum total of bitterness and disappointment imposed upon these thousands of hopeful young Freshmen. No one can estimate the amount of good will and energy that we thus subtract from society by this annual academic slaughter.

The load of our guilt is increased, however, when we consider that there may be an even greater loss than the immolation of freshmen. I refer to the debasement of "intelectual exchange" in college classrooms, brought about by the presence each year of over 70,000 who are obviously unfitted to partake of the academic college life in a way which will be acceptable to the colleges and profitable to the students. Cheap money drives out dear money, and low-grade students inevitably debase the standards and unwittingly violate the intellectual atmosphere of the class-room and of the campus. It is a well-known fact that in many colleges over 80 percent of the energy of the faculty and of the administration is absorbed by the lowest 15 or 20 percent of the students. I have spent many hours during the last five years in college classes and it has been my observation that much more than half of the class period, on the average, is spent on the five or six students in each class that are obvious failures and who will be sent home in academic disgrace at the end of the year. Very few teachers can resist the impulse to try to save the unfit students. The brighter minds in the class receive little attention because in any case they will "pass". This practice, although derived from goodness of heart, is in reality equivalent to embezzlement. It is analogous to investing public funds in 1 percent bonds when 10 percent or 15 percent bonds are crying out for investors.

All this tragedy comes from the failure of the colleges to fulfil their first and primary duty. The colleges seem to have only one desire, that is a frenzied desire to teach something. But we may state it as a general proposition as universal as the law of gravitation—perhaps more accurate—that the first duty of the teacher is not to *teach* the student, but to *learn* him—to learn what the student can learn, to learn how he may most efficiently learn it and to learn what things he really desires to learn and what things ought to be taught to him; to try to teach a student something that he cannot learn is not only supreme folly, but in the present state of civilization may be positively criminal in its results.

During the last quarter century we have spent millions of dollars and lifetimes of devoted effords to liberalize the curriculum, to escape from the restraints of the traditional classical course of study which in the past produced cultured gentlemen and in the present learned pedants. We have introduced such a variety of studies into the college curriculum that the printing of college announcements has become quite a serious budgetary question. Some colleges, I am told, expend more money now on printing their impressive announcements, than some other colleges spend on the total instructional force. We have also spent enormous sums of money in providing buildings and laboratories which are more modern and more convenient, if not more artistic, than those in which the founders of this great Commonwealth pursued their studies. Following the discovery of individual differences and the realization that the classics do not have a complete monopoly on cultural materials, we have created the Junior College and the Junior High School, and the use of new degrees and diplomas. A few years ago we fondly hoped that providing a variegated curriculum would solve the problems of the individual needs of students. But we have learned, to our dismay, that maladjustments have not diminished, but have increased almost as rapidly as the variety in our curriculum has grown. The fundamental problem is to get the right student and the right course of study together. Merely providing a vast variety of courses of study

* Delivered before the Society of Medical Jurisprudence at the New York Academy of Medicine, December 14th, 1925.

does not solve the problem. The usual elective system simply shifts the responsibility of educational guidance from the teacher to the student. This is obviously no better than getting out of the pan into the fire, or perhaps getting out of the fire into the pan. The fact remains that in spite of all the variations in curriculum, in standards and methods of instruction, and in spite of the stringent entrance requirements, we are still trying to teach some students things which they are natively incapable of really understanding with profit to themselves or others, or which they do not wish to learn, or which they will hate and forget if they do learn, or which will never serve in the lives tbey will actually live—even if they do learn and do not forget them. As a result of these misplaced efforts, we neglect the brightest minds, we bore them to death with what they have already learned and we allow them to acquire bad habits and bad attitudes by putting them in classes where they do not need to exert their powers at all to keep head and shoulders above their classmates. Some of the more serious and able students seek to escape this boredome by scattering their electives over the whole catalogue of courses, but only rarely do they win in this game of Blind Man's Buff. They get into courses which overlap monotonously with what they have had once or twice before, or into courses in which the pace is so slow that their intellectual interests are stultified or into courses which are so different from what they have already had that the words of wisdom go wide of the mark.

Although educational reports in general deal mainly with budgets and building programs and number of courses and number of degrees awarded, education in reality is what goes on in the minds of students and unless we know with some exactness the quality and content of the minds that we have to deal with, we cannot be wise teachers except by chance. We have two unknowns, each made up of many unknowns, at the center of the educational problem today. The first of these is the student body and the second the curriculum. In order to mitigate the present costly maladjustments, we must somehow relate these two unknowns to each other in terms of some common denominator, in terms which are reasonably objective and understandable and we must do this from the kindergarten to the graduate seminar.

We must remember that habits once learned will assert themselves, whether good or bad. We cannot neglect the early school years of college students in the hope that the college will erase all errors. We cannot leave a boat in stagnant waters for years and expect it to arrive in the port of college admissions free of unwholesome barnacles. We must cease to glory in the independence of the college. We must realize the functional unity and continuity of the educational process. A good college education is not one which consists of a break with lower school education, but is or should be a continuation of what has been going on before. In order to make this contact with the student's mind as he comes from the high school and enters college, we must know in precise terms the intelligence and equipment which is required by each college Freshman course and we must develop means for finding out exactly the intelligence and preparation and interests and needs of each individual that is to fit into the college curriculum.

These are all very inconvenient and annoying considerations. The fact that we graduate from college only about two out of every seven admitted and achieve this remarkable output only by much fussing and by much compromising with standards, is disturbing. Probably four out of each five who fail to graduate, and at least a few of those who do graduate, go out into the world as living examples of the futility and general meaninglessness of a college education. In the face of all this, it is surprising to find that some educators are inclined to place all the blame on the student and to escape the ambiguities of this very uncertain absolution by persuasively reiterating their faith in vague values of culture and in the imponderable spiritual factures of higher education. We also hear much from such apologists about certain mysterious processes of character-building in higher education and institutions. A disinterested observer might be forgiven if he became sarcastic or facetious in regard to this mysterious and miraculous character-building, with special reference to the large group of students that are so solemnly and laboriously admitted every September and who are dismissed in academic disgrace before the end of the first year.

A fundamental difficulty is introduced by the predilection manifested by some educators for discussing education in terms of vague ideals and mysterious processes and in terms of time ostensibly spent in school by students; whereas education really consists of very specific changes in the minds and hearts of individual students, in the form of bits of information gained, of small bits of information made larger, large masses of information organized in certain specific ways and in attitudes which are specific even if complex. So strong is the tendency to have faith in mysterious processes that we frequently find cases in which a student is coerced into taking a given course of study over four or five times until at last he passes it with a grade of C—or better. Although it is obvious that the student has no capacity for a given course and that his whole life is being poisoned by taking it over again and that his hatred of everything connected with it and his conviction of the general uselessness of education is daily growing stronger, the college still insists that the miracle of character-building requires the student to go through the motions of getting a C—.

The improvement of this lamentable situation depends upon the exactness and completeness of the information which we get about individual students. Adequate information is now nowhere available. Our whole educational system must be reorganized so that we may have accurate and comparable measures of the capacities and achievements of individual students throughout their whole school careers. We must keep such accurate and objective measures in comprehensible units so that the information gained about an individual by a lower school will not be lost but will be passed on to the next school for the continuous guidance of each individual student. Under the present wasteful system our students become increasing strangers as they advance up the educational ladder. This condition can be rectified only when teachers realize that their first duty is not to *teach* students but to *learn* students. Students can be *taught* efficiently only to the extent that they are first *learned*.

Our educational administrators must also realize that their duties include keeping of accurate and trustworthy records not only of budgets and buildings, but also of student capacities and student achievements. They must realize that the value of the work done by a college depends quite as much on the intellectual capacity and personal qualifications of students as upon the character and scholarship of the faculty and upon the physical plant of the college.

Discussion

Maj. William H. Allen, U. S. A.: Before the war we were very apt to put square pegs in round holes. An interesting commentary on this was made during the war to the effect that one of the greatest difficulties the army experienced was in the assumption that a regular officer was able to do anything.

During the work of this Commission we have tried to adapt those lessons to our work today. Several years ago I was interested in trying to adapt intelligence tests to recruits. The first question that came up was "Is the man intelligent?" As a general thing people are prone to confuse intelligence with education. An illuminating paper was published some time ago by Witmer entitled "Intelligence—What Is It and How Is It Measured?" in which intelligence was defined as the ability to cope successfully with new and unexpected situations. A very large proportion of college material are not teachable because they are not intelligent. The present system of entrance examinations does not measure the intelligence. In starting in our experiment with the recruits we used very simple intelligence tests and gave them routinely to every applicant for enlistment. After some experiments we established a tentative mark below which we would reject him. I applied personally a large number of tests and followed the careers of these recruits and I found that, generally speaking, their careers followed closely what our intelligence tests had shown. We then adopted these all the way up the line, combining our professional examinations with higher grade intelligence tests and it has worked very well. I believe the system now being put into effect in a tentative manner by the Columbia faculty is admirable. Another feature in connection with this subject not touched upon by Dr. Wood is the reaction of the student who does not want to learn, not because he is not intelligent but because he is a belligerent. I have had difficulty with those individuals, and I have to tell then frankly that I cannot teach them. What are we to do with them? Shall we throw away all disciplinary measures, or shall we throw them out and lose this really intelligent material?

Dr. Wood: I have also had some trouble with that belligerent type of student and I do not know of anything we can do with some of them. Quite a number, however, have become belligerent because of the maladjustments they have suffered throughout their earlier education. I know of a number of cases that fit into that category—students obviously very bright but almost nauseated by the idea of academic work. I have in mind a case that illustrates this condition. A young boy was discovered at the age of nine years in a school study room playing with complex algebraic equations. He had grown intellectually almost two years to every year of his life. It is an incredible and amazing fact that by the boy's teachers he had been classified as subnormal; few of them remembered him, but on looking up the records they found he was listed as merely average in everything but one subject and under average in that. In ordinary conversation he was considered subnormal. When teachers treat the most unusual student in the United States, if not in the entire world, in that manner and regard a genius of that type as a subnormal being, is it any wonder that the character of students is twisted and that they are trained to habits of laziness and indifference and bad attitudes? However, some of the belligerents are "criminals" and cannot be corrected and ought not to be kept in college; but I do believe that if there were intelligence demarcations recognized from the earliest school grades and the bright students were given the right treatment, much of this twisted, distorted attitude now so often seen would disappear.

As to the question of how to apply this system, there are now means of measuring intelligence with a certain degree of accuracy. The trouble is that there are different standards of intelligence. *You* may say that a certain boy is intelligent and *I* may find the opposite to be true. We are now developing what we call placement tests which will show where a student ought to start and it will not be necessary to accept the subjective opinions of others. We get every year 500 freshmen from all over the world in Columbia College and they have all had two or three or four years of modern languages. They come with grades A or B or C, etc., but we very often find that a student with a bare passing mark is in reality above another student who has an A mark in the same subject. That means the different schools from which they come are using different standards, but nine out of ten are strangely not willing to use a standardized test. The opposition to is not justifiable. The fact that measuring temperatures and making blood counts have been more standardized in late years than formerly does not mean that all patients receive the same treatment. These are standard means of diagnosis which must be accurate to be reliable. The colleges fear that standardized tests will mean standardized treatment of all students alike. They accuse us of trying to impart education as one assembles Ford cars. The comparison would be more apt if they would say Packard or Rolls Royce or other high priced, carefully assembled individual cars of which the parts must first be up to standard and then put where they will accomplish the best results.

Judge Alfred E. Ommen: A certain man always had a longing to go back to the town where he was born and after twenty-five years he did so. Everybody he had formerly known had disappeared except one old lady, Mrs. Dooley, so he called on her and had a long talk with her as to what had become of the people he had known in his youth. Among others, he asked about Jimmy Fogarty. "Well," she said, "Jimmy Fogarty went into the contracting business and made a million dollars." This astonished the man. "Why," said he, "Jimmy Fogarty was an ignorant man. He could neither read nor write. What became of him?" Mrs. Dooley replied: "He and some of his friends went bathing in the mill pond one hot night and he was drowned." "That," said the man, "was a very sad end for a most amazing man. To think of his making a million dollars when he didn't know how to read nor write." "No," said Mrs. Dooley, "nor swim."

The other evening I listened to very interesting talk by Dr. Stitt, Associate Superintendent of Public Schools in New York. I was very much interested in one fact that he told. It seems that in the public schools they have already handled this question in an effective manner which does not seem to have reached the colleges. By this plan all boys and girls who are defective or backward are placed in special classes. In this way the whole class is not held back nor is the teacher obliged to spend the entire time trying to bring those students up to the mark. There are now in the City of New York 57 classes for defective or backward boys and girls. Possibly that plan may some day be adopted by the colleges.

The lesson Dr. Wood has taught has been a serious one and has given me a great shock although I have thought of it myself many times. I am more strongly persuaded tonight than ever that it is more important to spend money on brains than on buildings. A man will readily spend a million dollars for a building that will bear his name but it takes a great deal of persuasion to induce him to spend a thousand dollars to further the cause of education. We know of so many such buildings—the Rockefeller Foundation, the Carnegie Libraries, the Sloan Hospital, etc., etc. They have cost millions. And yet the coaches of the football college teams receive higher salaries than the members of the faculty. If millions were given to increase the salaries of the professors we would have a better system of education and, as a result, a better country. The day will come some time when millions will be given for brains in preference to buildings.

John Kirkland Clark, Esq.: I presume that to a number of those present this evening many of the things Dr. Wood said sounded iconoclastic. But the conditions which he is trying to overcome are much more shocking in their results. We have a real problem here along this personnel line and the members of this Society ought to carry away a real sense of their obligations as members of the medical and legal professions to help solve it. There is a difference in the medical and legal professions, however, in more than one sense. A boy who has been through the process of being classed as a high school graduate gets a job as an office boy in a law office and after a few years can take the bar examinations for entrance into the legal profession. Or he can go to a law school if he can pay the fees. There are some law schools that are taking money from students who ought never to be permitted to enter. If they stay in the law school for three years they can come up for admission to the bar. We have a fixed passing mark, but we are trying to judge of the fitness of these candidates better than our predecessors did.

Twenty-three years ago those who read intelligence by the dollar sign decided I did not know enough to be admitted to the bar. When I took another examination I was passed. Those two experiences impressed me with the belief that there was something wrong with the system of examinations for the bar. And since I accepted the position which has thrust me in the midst of it I have put in a great deal of time studying the problem. I spent nine hours today on about eighty-five numbers of candidates which represents a set of four papers, trying to decide whether those men or women, for we do not know which they are since they are represented to us only by a number, showed quite enough intelligence to be admitted as practicing members of the legal profession.

If you think Dr. Wood's talk about the mysteriousness of the passing mark is nonsense, you should have sat through those nine hours today with me. We generally find that somewhere from 50 to 65 per cent fail to show the required amount of intelligence to reach that passing mark. Today it was a fraction over 60 per cent who were not quite as intelligent as the others. When you realize the number of men and women with sufficient preliminary training under our law to get a 72 count certificate and that they have studied law for three years, all raw material, you can see it as a difficult problem. What are we going to do about it? You doctors have an arbitrary ruling that one must be a college graduate to enter a medical school and you have also gotten rid of commercialized medical schools. When we see this in college courses and look over a group ranging from 700 to 800 per day to 1,100 last June, candidates for admission to the bar, you will realize the problem is a tremendous one for those 50 per cent that fail to pass the first time. There has been time wasted

during the years that they must find some useful occupation whereby they can make good in life. They should never have been permitted to study law. The community suffers an economic loss in the benefit to the community the man might have accomplished in some other occupation.

Dr. Wood (closing): An ideal scheme would involve a complete revolution of the entire system of education. We would provide for all types of individual activity with many branches and endeavor to find out what types of activity were suited for given types of mentality. There would be no rejections in the schools; only a system of guideposts into different lines of activity. There is, however, an element of rejection and that is in connection with the professions such as medicine, law and dentistry. We would have to have a passing line there for the protection of society. But we should separate the matter of education from police powers of the state. Mr. Clark's excellent Board of Bar Examiners, acting under the Regents of the State of New York, is fulfilling, in a sense, a police function of protecting society from unintelligent and untrained people who would be a menace if admitted to the profession. It has been my happiness in recent months to be not entirely unacquainted with bar examinations and in my reference to the Regents examinations I meant to include the Bar examinations. They are doing much to try to solve this difficult problem which we have underestimated in all our social relations. We must get back to the individual and subordinate buildings and endowments for football fields, etc., to real educational interests. I am told that the athletic budget of a certain great college last year was greater than the total instructional budget. These unacademic interests are absorbing the colleges, and the individuals for whom they are supposed to exist are being lost to sight. An individual may not be capable of passing through high school and college, and yet he has something of worth in him; it is the function of the schools to guide him into what he can do. Educations should ever be constructive.

In connection with what was said by Judge Ommen about investing in brains, it seems to me that the medical profession has one of the most beautiful examples of the effectiveness of that in history. The name of Dr. Gye, the man who discovered a remedy for cancer recently, is not his own name. It seems that a wealthy doctor gave this young man his fortune to permit him to become a research worker in this field on condition that he take his name. Here is a man of mediocre ability who enabled a genius to light the torch for all mankind and still perpetuate his name. An investment in a person, in such a case, is of much more value than an investment in a building, although of course we still need buildings.

Two Epidemics and Unheeded Lessons

Jacques W. Redway
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Abnormal weather conditions—tornadoes, floods, hot-spells, and hurricanes are front-page topics of newspapers. Usually they are surmounted by headlines of brobdignagian type. The fatalities of these catastrophies of Dame Nature get unstinted publicity, a greater publicity than is accorded to the visitations of the great pandemics which are many times as deadly.

The destruction of property accompanying the terror-striking physical phenomena of tornadoes, hurricanes, and floods naturally enough form the pabulum on which newspapers chiefly exist. The events of the destruction of Last Island and of Galveston are still fresh in the mind of the reading public. Yet the fatalities of both together were but little greater than those of the hot-spell of June one year ago.

In the half century of the history of the Weather Bureau the mortality due to summer hot-spells probably equals if it does not exceed the fatalities of wind and wave, and of fire and flood in the United States. Hurricanes destructive to life come at intervals far apart; and the fatalities of tornadoes are almost negligible.

General Greely, the onetime chief of the Weather Bureau, was the first to acquaint the public with the death toll of the summer hot-spell. The machinery for collecting and publishing vital statistics was far from perfect in General Greely's time, but the statistics gathered by the then head of the Weather Bureau comprised the best information on the subject obtainable. The figures presented were a surprise and more than one newspaper questioned their accuracy. But General Greely was not caught napping; investigation confirmed everything that he had asserted.

A summer hot-spell in the United States is due namely to stagnant conditions of air over a large area; and heated terms of the sort are apt to reach their extreme intensity in the central region. As a rule, a high pressure of air off the east coast—the "stranded Bermuda high"—retards the normal eastward flow of air and the stagnant air therefore grows warmer and dustier. The temperature over a large part of the central plain rises above 100° and so remains for a period varying from three to six days.

The hot-spell of June, 1925, may not have been more deadly than those noted by General Greely; but, in the meantime, the facilities for collecting vital statistics have been perfected and bulletins of the mortality of the larger cities of the United States are issued weekly. The accompanying graphs show the mortality figures of sixty-four cities having an aggregate population of about 27,000,000. The broken line shows the death rate per thousand of population approximately week by week, according to the figures at the left. The jump in the rate for the first half of June is the toll of the hot-spell. Compared with the average death rate for the same period the June hot-spell cost about 3,200 lives.

It is doubtful if any newspaper in the country failed to comment upon the mortality of a condition which occurs at intervals of a few years. A German paper noted it as one of the common incidents of life in America. The conditions of stagnant, dusty, and very dry air of the summer hot-spell are paralleled in our living rooms during the winter season, with the result that the death rate rises from fifty to one hundred percent over that of the summer months.

An unbroken line roughly parallel to the broken line of February, March, and April, 1926 would represent the normal death rate for those months. The leap in the rate per thousand of population represents the toll of pneumonia and the influenza. They are combined for the reason that they cannot be separated. The increase over the normal rate means a toll of over 29,000 lives—not in the whole of the United States, but in areas comprising one-quarter of its population.

One might reason that a death toll of pneumonia and the influenza, nine times that of the June hot-spell would receive generous comments from the press. It did not—it passed practically unnoticed. Why? Because the sacrifice of human life, unless in an unusual way, no longer interests the public. Ten years ago when it was reported that the victims of the fool who stepped on the gas instead of blowing it out numbered 6,700, there was a general exclamation of horror. In 1926 the fatalities from this cause will reach 20,000; and the news is not worth a front-page headline. We have become accustomed to motor-car slaughter, just as we have become used to the toll that pneumonia demands.

Pneumonia and the influenza are the last of the deadly communicable diseases remaining unconquered. The influenza reaches epidemic proportions perhaps once in a dozen years, continuing in epidemic form two or three years; its onset as a pandemic occurs about once in a

generation. In the future, medical science may discover a means of quarantine against it, or a serum which insures immunity.

Pneumonia has always been with us. Perhaps in years to come it may be conquered. In the registration area the death toll varies from 70,000 to 100,000. About sixty percent of these in 1923, the latest complete report, were due to lobar pneumonia. The occurrence of pneumonia is world-wide; quarantine measures against it, therefore, are ineffective. Perhaps medical science may make humanity immune; possibly it can be made resistant, which is infinitely better for the reason that resistance will eliminate fatality.

The Federal Government is now spending $30,000,000 a year in an attempt to eradicate alcoholic thirst the yearly deaths from which have rarely exceeded 6,000—or, combined with cirrhosis of the liver, 14,000. Not one cent is spent in arresting the half dozen diseases whose yearly toll is half a million lives. So far as pneumonia and the influenza are concerned, there is not a good reason for assuming that they cannot be muzzled to the extent that other communicable diseases are overcome. The epidemic of the current year ought to be an object lesson; on the contrary it has been taken in the spirit of "what cannot be cured must be endured."

While Uncle Sam's loose millions have been poured out in the wonderfully successful venture of legislating human appetites out of existence by statutory enactments, Federal aid in the research for preventives against the two most deadly communicable diseases has not been forthcoming. The two most deadly diseases? Pardon; two other human maladies are even more deadly. They are ignorance and fanaticism—and the curse of Almighty God hovers over both.

Meteorological Laboratory.

The Doctor in the Witness Box

THOS. A. LEWIS

FORMERLY EDITOR "SOUTH AFRICAN CHEMIST AND DRUGGIST"

In probably nine cases out of ten, the medical testimony given at murder trials is the hinge upon which the verdict rests, and upon which hangs the fate of the prisoner at the bar. It is therefore easily understandable that medical witnesses are subjected to the most severe cross-examination, and that the slightest hesitation gives counsel his opportunity to strike a shrewd blow or to make an important point.

The body of Maria Monk, the Red Barn victim, was identified not only by the absence of certain teeth, but by signs about the lungs indicating an attack of inflammation of the chest, which she was known to have had shortly before her mysterious disappearance.

In the middle of the last century, a medical practitioner, Dr. James Reid, was called to a room where a man and his wife lay with their throats cut. The woman was dead, lying in a pool of blood on the floor by the bedside, with her throat cut from ear to ear. The husband was in bed with his windpipe cut, but alive.

He said that in the middle of the night he was aroused from sleep by receiving a wound in his throat from his wife's hand. The shock and the loss of blood, he explained, had prevented him from giving an alarm. But something in his manner excited suspicion, and the doctor, turning up the bed-clothes, found that the sole of the man's foot was covered with dried blood—a fact which gave the lie to his story, and helped to establish his guilt.

Even in cases of less gravity, the medical evidence has often proved the turning point of the trial. One Joseph Parker was arraigned for bigamy, committed, it was stated, under the name of Thomas Hoag. Witnesses swore that Hoag had a scar on his forehead —so had Parker. Hoag spoke with a lisp—so did Parker. Hoag had a peculiar mark on his neck—so had Parker. Hoag was known to have a deep-seated scar on his foot. But it was at this point that the accusation against Parker faltered, for there was no such blemish on his foot . . . and so he secured an alibi.

A French thief cut himself with a broken window-pane when leaving a house he had robbed. He was tracked by the drops of blood which were observed to be on the left side of the footprints. Following his track, a doctor discovered what he pronounced to be a shred of skin. Search was made in a village near which the track was lost, and a man was arrested on suspicion.

On being examined, it was found that he had received a recent wound in his left hand, from which a patch of skin was missing. The shape and size of the wound corresponded, in the sworn opinion of the doctor, with the piece of skin he had picked up. On his evidence the thief was convicted.

In more recent years, the body of poor Belle Ellmore, the victim of Crippen, the poisoner, is a case in point of the manner in which such sordid tragedies are investigated, and of the meticulous care with which the medical experts perform duties which to the lay mind are as gruesome as they are mysterious. Apart from the sworn testimony as to the presence of a deadly poison—hyoscin—in the remains, which were in the last stages of decomposition, a Home Office analyst discovered traces of a small old-standing scar—one which, by reason of its form, could only have been caused by the surgeon's knife. The supporting evidence proved that Belle Ellmore had been operated upon for appendicitis some years previous to her disappearance, and, as the scar corresponded with such an operation, the last link in the chain of identification was forged.

Recently, in the case known as the "Blazing Car Tragedy," the medical evidence helped to establish the fact that the man had, first of all, shot the woman, then taken prussic acid, and afterwards set fire to the car, hoping that by doing so all traces of his crime would be completely effaced.

All of which goes to show how medical testimony can lift a criminal case out of the fog of doubt into the clearer rays of proved fact, and so help to bring a criminal to book, or remove the stigma of guilt from a person who has been wrongly accused.

The Physician's Library

Modern Clinical Syphilology. By John H. Stokes, M.D., Professor of Dermatology and Syphilology in the School of Medicine, University of Pennsylvania. 1,444 pages with 885 illustrations and text figures and more than 200 detailed case histories. Philadelphia and London: W. B. Saunders Company, 1926.

Any pronouncement on syphilis from John H. Stokes is given serious consideration, because he is one of the world's outstanding factors in the treatment of that disease. His book has long been anticipated, and it offers one of the instances in which realization equals anticipation.

To go into a critical review of this volume is impossible in these pages, and the reader must be satisfied with the frank statement that anything in the treatment of syphilis which has been omitted from this book is of very minute consequence. The writer has gone from Dan to Beersheba and has covered all intervening points.

The text is most lucid. The illustrations, 885 of them, are particularly clear, useful and illuminating. A feature is that many of these illustrations are not pictures at all, but are boxes containing outstanding features or some condition such as "symptomatology of basilar meningitis," under which heading is given, in concentrated form, the symptoms of that particular condition. We admire this clever way of presenting these most important features in so clear and unique a manner. Indeed the whole book stands out as one of real unusualness, and it reflects the greatest credit upon its distinguished author.

Principles and Practice of Chemotherapy. With Special Reference to the Specific and General Treatment of Syphilis. By John A. Kolmer, M.D., Dr.P.H., Professor of Pathology and Bacteriology in the Graduate School of Medicine, University of Pennsylvania. 1,106 pages with 82 illustrations. Philadelphia and London: W. B. Saunders Company, 1926.

It is well that a most ambitious book on chemotherapy should be prepared by a pathologist of great eminence, and this volume is no disappointment to his admirers. It treats of the principles of chemotherapy, but with specific direction toward the treatment of syphilis.

The author considers bacterial, myotic and trypanosomal diseases; non-syphilitic spirochetal disease, protozan and metazoan diseases.

In addition to all this the pharmacology and toxicology of antisyphilitic drugs is considered at great length, together with the methods of administering these drugs.

This book is splendidly inclusive, and it furnishes the physician the contents of an encyclopedia in fairly condensed form.

Doctor Kolmer, already a prolific writer, has added materially to his professional reputation by the presentation of this treatise.

A Doctor's Memories. By Victor C. Vaughan, M.D. 228 page. Indianapolis: The Bobbs-Merrill Company, 1926.

A very full life has been set forth in these pages. The author is one of America's best known medical men, a physician who throughout his entire professional career has been a hewer of wood and a carrier of water.

His biography, if these pleasantly written lines can be so regarded, will be a joy and delight to medical men, because in his own modest way Doctor Vaughan has set forth his accomplishments in most readable fashion. Had some one else written this book the Doctor would have received more credit, but the mere statement of what he has done shows the greatness of the man and the unusualness of his accomplishments.

It is a pleasure to designate this book as one that should be one of the six best sellers.

How We Become Personalities. By Edward Huntington Williams, M.D., of Los Angeles. 295 pages. Indianapolis: The Bobbs-Merril Company, 1926.

The author, a well known neurologist and alienist, has brought to our attention the various glands of the body and in a most pleasant reading style has demonstrated what each one of these glands can and cannot do. The book is, of course, intended for public consumption, but any physician who reads it will gain much interesting endocrinological information.

We become personalities through acquirement, and not inheritance, is the opinion of the author, and he rather clearly demonstrates the fact. The book makes most interesting reading.

Plastic Surgery of the Head, Face, and Neck. By H. Lyons Hunt, M.D., L.R.C.S. (Edim.), Consulting Plastic Surgeon of the Lexington Hospital, New York. 404 pages. Philadelphia: Lea and Febiger, 1926.

Plastic surgery was appropriated by unqualified persons until the World War. Since that time it has found a stable and important place among the surgical specialties.

Doctor Hunt was one of the first of our high grade surgeons to take up this work, and he was stimulated by his World War experience. Since that time his technique has been perfected with the result that he has been able to present, from his own wide experience, a book which is bound to take its place with the very best presentations of the subject yet given to physicians.

One must not think that plastic surgery has only to do with war injuries. The author has demonstrated that wounds really offer the smallest field. Keloids congenital superficial defects, defects of the region of the ear, eye, nose, jaws, lips, mouth, scalp, skull, and cervical region, all enter into the field of operation of the plastic surgeon. The author has splendidly covered various types of cases which come under the care of this particular specialty, and he has called to his assistance nearly 350 illustrations to add to his most enlightening text.

Dr. Hunt has enriched surgical literature by the presentation of this volume.

Urology. By Oswald S. Lowsley, M.D., Director of James Buchannan Brady Foundation of the New York Hospital, and Thomas J. Kerwin, M.D., Chief of Urological Clinic of the New York Hospital. 699 pages, with 246 illustrations. Philadelphia: Lea and Febiger, 1926.

Lowsley is one of the best urologists in the country. He received his training with Hugh Young, and his style of technique is naturally on the order of that urological master. It stands to reason, therefor, that any book which he would write would detail the very latest and most improved data on the important subject of urology.

A careful examination causes the reader to wonder how so much can be crowded in such a comparatively small space. Every minute detail of urology has been properly covered. The work is based entirely on the personal experience of the authors, and the result is that one gets a most comprehensive idea of Lowsley's methods. Great care has been taken through an extensive bibliography to set forth the opinion of other urologists, but the operative procedure is distinctively Lowsleyian.

Lowsley has attracted much attention to himself through his widespread employment of regional anaesthesia. He was probably the first urologist of importance to take up this method, and he has, as the result, a tremendous number of operations which have been successfully carried out through regional anesthesia. Those who have watched him operate realize that in his hands, at least, this method is, in very many instances, the anaesthetic method by choice.

The author is a most finished operator and his book indicates the carefulness and thoroughness which is so characteristic of him.

In the splendid presentation of the subject, Dr. Lowsley has been happily assisted by Dr. Kerwin, who is one of his New York Hospital Associates, and the resulting book is one which will find very great favor with the medical profession.

Clinical Interpretation of the Wassermann Reaction. By Robert A. Kilduffe, M.D., Atlantic City, N. J. 203 pages. Philadelphia: Lea & Febiger, 1926.

The purpose of this little monograph is to show the practitioner exactly what the Wassermann means and does not mean. Too often the doctor getting a positive report immediately diagnoses the case as syphilis, even though there be no substantiating evidence. This misinterpretation causes tremendous discomfort and often makes the doctor look ridiculous. Doctor Kilduffe has gone far toward demonstrating just what the physician may expect from such a report. The Wassermnn is most useful when properly employed.

The International Medical Annual. 555 pages. New York: William Wood & Co., 1926.

The 44th edition of this Annual brings to the practitioner a birdseye view of practical medicine, aided by many illustrations, *x*-ray pictures, and line cuts. To be sure, the authorities quoted are very largely British, and this fact in itself makes the book valuable. It gives the reader a foreign, rather than a domestic purview of the subject. The contributors are Britain's best, and naturally the book is one which is bound to prove of great value to the physician who would keep up with the very latest in medicine.

Diseases of the New Born. By John A. Foote, M.D., Georgetown University Medical School. 231 pages. Philadelphia and London: J. B. Lippincott Company, 1926.

At first blush one would wonder why it is necessary to devote an entire book to diseases of the new born, when most of the new born should be normal. One has only to read the index to recall that new babies are subjected to all kinds of abnormal conditions. Dr. Foote has done well to set forth in readable language, and with a series of splendid illustrations, the great number of physical, mental, and anatomical abnormalities to which the small baby is subjected. The work has been done with thoroughness.

Dr. Foote has called to his assistance Drs. W. F. O'Donnell, J. M. Moser, F. I. Eichenlaub, and Prentiss Willson, who have prepared certain of the chapters on special conditions.

Strength of Religion as Shown by Scientists. By Charles E. de M. Sajous, M.D. 252 pages. Philadelphia: F. A. Davis Co., 1926.

The author, who is one of the leading factors in bringing endocrinology to the attention of the world, would seem to have gone far afield in taking up this subject.

He brings out certain definite features, notably that the Darwinian theory no longer prevails in science, that the descent of man from monkey is purely mythical, there is no real reason for religious discord, that science clearly demonstrates the existence of God, and that religion sustained by science is stronger than ever.

The book is one worthy of the most serious consideration, because it is a distinctly religious book, written by one of America's best known scientists.

Cannula Implants. By Charles Conrad Miller, M.D. 99 pages. Chicago: The Oak Press, 1926.

To surgeons interested in esthetic surgery this book will prove of value. It sets forth, in some detail, every surgical method employed in the pursuit of this particular line of operative procedure.

Indigestion. By Arthur L. Holland, M.D., of Cornell University Medical College. 130 pages. New York: D. Appleton & Co. 1926.

To the man afflicted with indigestion, (and who does not come under that category), this book will appeal distinctly. It is prepared more for the layman than for the physician, or perhaps we might say that it is written to aid the physician in explaining the various conditions attended upon indigestion to the laymen in language he will understand.

Dr. Holland is one of the best known gastro-enterologists in the country, and his words carry very great authority. If the readers of this book, and they should be legion, would carry out the ideas laid down therein, there would be must less indigestion in this world, and consequently a great deal more happiness.

Proctology. By T. Chittenden Hill, M.D., Harvard Graduate School of Medicine. 294 pages. Philadelphia: Lea and Febiger, 1926.

We had the pleasure of reviewing the first edition of this snappy little monograph and commended it on account of the practical methods of handling the subject given us by Dr. Hill.

The second edition adds the new points in proctology which are not to be found in the other book, and it has been made generally more valuable.

Gould's Medical Dictionary. Edited by R. J. E. Scott, M.D. 1,398 pages. Philadelphia: P. Blakiston's Son & Co., 1926.

The *British Medical Journal* said that "Dr. Gould is the Johnson of medical lexicography." Certain it is that the gifted litterateur knew how to compile a useful dictionary, just as he did how to do everything else well. Gould has been gathered to his fathers, but his mantle has fallen upon competent shoulders in the person of Scott.

It is difficult to realize that this work has now been printed 55 times and that new words and many changes have been made with each printing. The result is a work well nigh perfect.

Great care has been exercised to give the reader every assistance in the way of derivation, pronunciation, and other helps that may prove of value.

One may think that a dictionary cannot be interesting. As a matter of fact, with its wealth of new material, its biographical thumb nail sketches and its pictures and tables, one can spend many happy and profitable hours in going over the pages of this volume.

Practical Dietetics in Health and Disease. By Sanford Blum, M.D., of the San Francisco Polyclinic. 362 pages. Philadelphia: F. A. Davis Co., 1926.

The physician who has printed dietaries for use in certain conditions and who does not deviate therefrom often finds his patient making slower progress than he desires. Blum's book shows how one can have an elastic dietary that will give more nearly perfect results.

He presents a careful plan of feeding for each disease, with type meals and the variations that are allowed.

The book is decidedly practical and could be used to advantage by physician, nurse or housewife.

Surgical Treatment of Goitre. By Willard Bartlett, M.D., St. Louis. Forward by Charles H. Mayo, M.D. 365 pages. St. Louis: C. V. Mosby Co., 1926.

The subject is thoroughly covered by one of the best known goitre surgeons in America. He presents goitre in toto, naturally going into operative technique in detail. By enlightening text and unusually illuminating illustrations, Bartlett has given the reader a clear and comprehensive idea of a most important surgical procedure.

The book will act as an admirable guide to the budding surgeon, as well as a landmark to experienced operators.

The Human Body. By Marie C. Stopes, D.Sc. of London. 268 pages. New York: G. P. Putnam's Sons, 1926.

For those who would possess a sketchy, but entirely accurate knowledge of the human body, minus most of the anatomical phraseology, this book is eminently suited. It dips into anatomy and physiology and gives the man of Catholic tastes, a fine conception of what we are made and how we function.

It is especially applicable for young people, but every one can read it with profit.

Materia Medica for Nurses. Compiled by Lavinia L. Dock, R.N., and Jennie C. Quimby, R.N. 8th edition. 317 pages. New York: G. P. Putnam's Sons, 1926.

This book has gone through so many editions and is so famailar to all that it requires only a vote of recognition.

It has for years been regarded as the nurses' standby. It has a value to the physician in that it gives him an excellent opportunity to review the subject in an easy, but authoritative manner.

Chemistry of Food and Nutrition. By Henry C. Sherman, Ph.D., of Columbia University. 636 pages. New York: The Macmillan Co., 1926.

The third edition of this useful text book gives its readers the latest promulgations on the nutritive value of foods.

Indeed nutrition is considered by the author in this volume to the exclusion of other topics usually considered in a study of foods.

Not only are the subjects of food constituents presented in detail, together with digestion, but the vitamins, dietary standards, the best uses of foods, with composition of food stuffs and other topics in connection with nutrition are carefully expounded.

International Clinics. Edited by Henry W. Cattell, M.D. Vol. III. 36th Series. J. B. Lippincott Co. Philadelphia and London, 1926.

This number contains thirteen articles on diagnosis and treatment, four on neurology, psychiatry and psychology, three on surgery, eight on travel, as well as a biography of Sir Clifford Allbutt, by Sir Humphrey Ralleston.

These volumes are of such uniform excellence that it is impossible to praise one at the expense of the other. Doctor Cattell, in his long service as editor of the Clinics, has rendered the medical profession yeoman service in furnishing, four times annually, a series of articles on medicine's most important subjects and presented at opportune times. The value of this series, now 36 in number, can not be calculated.

Materia Medica and Prescription Writing. By Oscar W. Bethea, M.D. of Tulane University. Cloth. 498 pages. Philadelphia: F. A. Davis Co., 1926.

If druggists are to be believed books of this character should be carefully studied by physicians, especially younger graduates. They claim that the ignorance of prescription writing, on the part of some medical men, is appalling.

The fourth edition of this book brings it up-to-date, as it conforms to U. S. P. X. It is an excellent work, very practical, with the subject carefully covered. Its general use would add materially to the reader's knowledge.

The Duodenal Tube. By Max Einhorn, M.D. of the New York Post Graduate Medical School. 206 pages. 2nd edition. Philadelphia: F. A. Davis Co., 1926.

If you want to know all about the tube which plays such an important part in the practice of gastro-enterology, read this book and profit by its teaching.

Its author stands at the top of the list in his line and his writings are authoritative.

The life history and labors of the duodenal tube are completely set forth in this useful monograph.

The Modern Treatment of Hemorrhoids. By Joseph F. Montague, M.D. of the University of Bellevue Medical College; with a foreword by Harlow Brook, M.D. of New York, 296 pages, 116 Illustrations, Philadelphia: J. B. Lippincott Co., 1926.

In presenting this book the author gives us one of the most practical treatises on the subject which has yet appeared. He brings out the fact that hemorrhoids are not necessarily a purely surgical condition but that they are often symptomatic of disease in other parts of the body. Another excellent feature is his inclusion of the pathology which is so important in considering the cause of hemorrhoids. He goes into the injection treatment rather extensively and shows just how that method can be applied to the advantage of the patient. Dr. Montague has left no stone unturned to bring out everything which is of the slightest importance and the book is most heartily commended.

Defective Memory, Absent Mindedness and Their Treatment. By Arnold Lorand, M.D. of Carlsbad. 340 pages. Philadelphia: F. A. Davis Company, 1926.

That the glands of internal secretion play an important part in the possession of a good memory is clearly brought out in this book. Glandular dysfunction is one of the causes of forgetfulness. The author goes into the other causes of the condition, as well as to the treatment, with characteristic thoroughness. He lays down a variety of methods of treatment which he insists have demonstrated their defectiveness in many cases.

Practice of Physio Therapy. By C. M. Sampson, M.D., formerly of the U. S. Army. 620 pages, 146 illustrations. St. Louis: C. V. Mosby Company, 1926.

Physiotherapy is covered in this volume from alpha to omega. It would be difficult to find anything of importance which has been omitted. The author's rather broad experience in the actual practice of physiotherapy, as well as his papers thereon, fits him to present the subject in an authoritative manner. It is clearly brought out that physiotherapy offers much hope in many conditions which do not respond to other methods of therapy. This book is a most careful exemplification of what may be expected from this particular line of treatment.

The Scientific Basis of Chemotherapy. By Iwan Ostromislensky, Ph.D., M.D. Obtainable from author, 280 Broadway, New York.

The author presents a new dualistic chemotherapeutic theory and its relation to Ehrlich's "Side-Chain Theory." He compares the mechanism of the curative action of salvarsan preparations, of quinin and of his recently discovered preparation pyridium.

Pyridium is stated to have a group-selective action on the cocci genus, being bactericidal toward streptococci, micrococcus tetragenus, straplococci, pneumococci, and diplococci of various strains. It appears to have a high penetrating power. If the original findings of the author and his co-workers are confirmed the remedy may prove to be a valuable addition to the present list of therapeutic agents.

Treatment of Anthrax

The mortality was 10.93 per cent in 192 cases in which a 5 per cent solution of peptone was injected intramuscularly once or twice a day until the general symptoms subsided by F. Destefano and P. F. Vaccarezza. It was 15.85 per cent in eighty-two treated exclusively with antianthrax serum, and 29.41 per cent in the seventeen treated exclusively with normal beef serum. Excluding cases in which death occurred within two days, these figures became respectively, 9.04 per cent for peptone; 10.38 for antiserum. and 25 per cent for normal beef serum. The peptone parenteral protein therapy seems to be not only more effectual, but it does not induce serum sickness.—(*Semana Medica.* 1:165. Jan. 28, 1926.)

Thyroidectomy Under Local Anesthesia

A review of operations performed for goiter at the Jackson Clinic from October, 1922, to October, 1925, shows a total of 465 thyroidectomies and 75 ligations or stage operations. Since June, 1924, no ligations or stage operations have been done. During the past twelve months 221 thyroidectomies have been performed with a mortality of 0.09 per cent; one death was from pneumonia and the other from embolism on the tenth day. This last series includes 49 cases of toxic adenoma, 109 cases of nontoxic adenoma, 60 cases of exophthalmic goiter, one case of intrathoracic goiter, and two cases of carcinoma. Local anesthesia was employed in all but six cases. Usually 200 to 400 cc. of warm solution of 0.5 per cent novocain containing no adrenalin is employed. The infiltration method is preferred to the technic of blocking the cervical plexus by the lateral direct route.—(*Northwest Med.*, December, 1925.)

Obituary

August M. Sartorius

Dr. August Matern Sartorius of Tenafly, N. J., departed this life on November 2, after an illness of five weeks, from a complication of diseases. His untimely end occurred at the New York Post Graduate Hospital, and the cause of death is directly traceable to unusual hardships suffered during service in the trenches in the spring of 1918 while serving as a medical officer in the United States Army.

Dr. Sartorius, who was the son of Mr. and Mrs. Otto Sartorius, was born in Brooklyn, June 11, 1888. He fitted for college at the Polytechnic Preparatory School, and was graduated from the Brooklyn Polytechnic Institute as a Bachelor of Science in chemistry with the class of 1908. While in college he was a scholastic leader and very prominent in undergraduate activities.

In the fall of that year, Dr. Sartorius entered The Long Island College Hospital and took the freshman year in medicine, transferring in the sophomore year to the Medical School of Yale University, from which he was graduated as a Doctor of Medicine with the class of 1912.

Then followed a year in study in foreign hospitals. Upon returning to this country in 1913, Dr. Sartorius became vice-president of the Laboratories of Reed & Carnrick, in which his father had been interested financially for many years, and two years later the doctor succeeded to the presidency.

From that time until the day of his death his efforts had been entirely directed toward the study and exemplification of pluriglandular therapy. Not only did he improve some of the products which had been used by physicians for a half a century, but he was instrumental, through research, in adding new glandular products to the list of our medicinal agents.

Dr. Sartorius, in his professional work, lived up in every way to the prophesies of his professors in Yale, where he stood at the head of his class, as a student, a research worker, and a doer of deeds.

In June, 1917, he was commissioned a First Lieutenant in the Medical Reserve Corps, U. S. Army, and was sent to Fort Benjamin Harrison, Ind., for training. After several months at that post he was assigned to Camp Upton, New York, and stayed there until March 28, 1918, on which date he sailed overseas as an officer of the 305th Ambulance Company, 302nd Sanitary Train, 77th Division. He immediately assumed most arduous duty, and the long exposure in the front line, inability to obtain proper food, and lack of sleep, caused a physical breakdown.

The doctor was sent to a hospital in Paris, and in June was returned to this country with the expectation of the medical officers that he could not possibly survive. He was in U. S. Army General Hospital No. 9 for months, and while in precarious health, finally received an honorable discharge from the army "on account of physical disability incurred in line of duty."

Dr. Sartorius immediately plunged into his research work with tremendous energy. While he built up the business of his laboratories it was done so at the expense of his own health, and he died at the early age of 38 a martyr to professional duty.

He was married just before he went overseas to Miss Jessie R. Hopkins, daughter of Mr. and Mrs. Jesse L. Hopkins of New York, and three children, a daughter and two sons, have blessed this union.

His affiliations include fellowship in the New York Academy of Medicine and he was a member of Phi Kappa Psi, and Alpha Kappa Kappa fraternities, and numerous other professional and social organizations.

John Van Doren Young

John Van Doren Young, M.D., F. A. C. S., eminent New York gynecologist, who died Oct. 25, was born in Plainfield, N. J., October 3, 1864, the son of the late Mary J. Garrison and Dr. John Young. He came from a family of medical men, being the fourth in direct line.

Dr. Young received his education in the Newburgh Academy, and his medical degree was received from the College of Physicians and Surgeons of Columbia University in 1888. He served as intern at St. Luke's and the New York Nursery and Child's Hospitals, beginning private practice in 1890 in New York City, which he continued until his death.

Early in his career Dr. Young devoted his energies to the study of gynecology and later became a specialist in this line, devoting much of his time to obstetrics. He contributed to the literature of both subjects, particularly to gynecology.

He was attending gynecologist to St. Elizabeth's Hospital, professor of clinical gynecology to the Polyclinic Medical School and Hospital, an consulting gynecologist to the Hackensack Hospital.

The doctor was greatly interested in organization of medical men for their own protection and the advancement of the profession. The Medical Society of the County of New York

was his greatest interest, he having served this organization eighteen and a half years as its secretary. He was also secretary of the Physicians' Mutual Aid Association for fourteen years.

Dr. Young was a Fellow of the American College of Surgeons, the New York Academy of Medicine, the New York Obstetrical Society, a member of the County, State Societies and the American Medical Association, the Alumni Society of St. Luke's Hospital, the Medico-Surgical Society, of which he was president in 1922 and was a Mason, a member of Kane Lodge, of which he was master in 1907; and of Jerusalem Chapter No. 8.

Public Health

Red Cross Fights Prejudices Against Modern Medical Treatments in United States

Combatting superstition and prejudice against modern medical methods forms an important part of the work of the more than 835 Red Cross Public Nurses operating in various parts of the United States in connection with Red Cross local Chapters.

Removing such prejudices is some times more difficult than many people realize, who are not acquainted with the strength which "handed down" legends and cures have attained. There still are people in the United States who attach more credence to these ancient beliefs than they do to modern medical discoveries.

Many of these outworn "treatments" resemble boyhood prescriptions for warts, being of the "dead cat at midnight" or stump-water variety. These beliefs even extend to witch-craft, one instance being reported of a woman who was treating a child for "evil spirits," which afterwards was found to be epileptic fits, by resorting to some superstitious routine which had been current practice in the Dark Ages.

The practical value of the Public Health Nurse, as well as the work of such other Red Cross branches as the First Aid and Life Saving Services, in assisting the physician's task throughout the United States is demonstrated constantly.

How many cases of infected injuries are warded off by the First Aid instructor's warning against such practices as the use of cobwebs to staunch bleeding, or similar dangerous methods, can be estimated by any one who is familiar with the wide-spread currency of such erroneous treatments. Oftentimes the application of scientific first aid methods as taught by Red Cross experts has meant that when the doctor arrived, he has found only a straightforward case presented to him, uncomplicated by infection, or by bungling attempts to render treatment by persons whose intentions were better than their ability in such emergencies.

The unceasing war of the medical world against epidemics is rendered more effective also through the Public Health Nurse. For example, the Red Cross, through this corps of nurses, is urging every un-vaccinated person in the United States to follow the warnings of health authorities that they be vaccinated immediately. This advice is based on the discovery by health authorities that the menace from small-pox is growing greater every year; the number of cases found in the District of Columbia and forty states in this country, and eight provinces of Canada in 1924 being nearly double those of the previous year. This gain by a dread disease is attributed to a growing population of un-vaccinated people. It has been declared by authorities that continued neglect of this simple preventative is to invite a return of the old conditions when sporadic epidemics wiped out whole communities.

The Public Health nurse goes into schools and communities, and through her efforts many times, large groups of children are reached who are in need of simple medical and dental treatment which if received in time, often saves much greater suffering at a later period.

Her lectures to housewives and young people on simple health measures such as proper heat and ventilation in the home, undoubtedly do much to reduce illness and suffering from colds and even more serious diseases. At the same time the knowledge she imparts on important health subjects makes her hearers realize the importance of not neglecting to have ailments attended to by competent physicians, and not to ignore symptoms which if attended to by prompt medical treatment may save more serious illness.

The Nutrition Service of the Red Cross likewise plays its part in health by spreading accurate and approved knowledge of the principles of food in relation to health. Statistically speaking, 4,000 adults and 114,000 children received such instruction in the past year. The Public Health Nurses taught care of the sick in the home of 65,000 women and girls, besides carrying on other important services. First Aid instruction was given to 19,000 persons.

The Red Cross maintains special representatives with hospitals where ex-service men are under treatment, cooperating with the medical authorities in promoting their recovery; the Junior Red Cross pays special attention to children in hospitals, as well as to the disabled veteran.

These services cover a wide field in themselves, yet they are only a part of the Red Cross work for the United States. All Red Cross service is performed in the name of the country by reason of the nation-wide membership in the organization.

Poisonous Spiders

The greater part of the current number of *Memorias do Instituto de Butantan* (1925, Tomo II., Fasciculo Unico, Santo Paulo, Brazil) is taken up by an elaborate and interesting study of poisonous spiders, which are, unfortunately, somewhat numerous on the South American continent and also in various other parts of the world, including some European countries. The Italian tarantula is the most famous of all these pests, and the authors, Dr. Brazil and Dr. Velland, discuss briefly the question of tarantulism, epidemics of which were said to occur in the seventeenth and eighteenth centuries.

After a short historical retrospect, they give the results of their experimental investigation on the venom of several species, with a description of their technique, and describe the different effects, local and general, of the venoms of different species, and the results obtained by inoculation into animals. By the progressive inoculation of sheep they succeeded in obtaining a very active antiserum for the venom of two species and they recommend this method of treatment. There are a number of excellent illustrations, showing the spiders themselves, their poison glands (macroscopically and microscopically), and the lesions produced by them in men and animals. The lesions of some species are extensive local necroses, whilst the venom of others, which are far more deadly, acts mainly on the nervous system and is said to be as potent as that of the more dangerous snakes.—(*Lancet*, Feb. 27, 1926.)

Light and Health

Emery R. Hayhurst, of the Ohio State University and Ohio State Department of Health, Columbus, Ohio, says the existence of life on earth depends in the last analysis upon radiant energy from the sun, some of it perhaps stored in goodly part in food, coal, oil, etc. Much has been written recently regarding the subject of light rays and heliotherapy. At the Bath Meeting of the British Medical Association, papers were read by Leonard Hill, G. B. Dixon, Doris E. Colebrook, W. E. Dixon, C. E. M. Jones, and G. H. Lancashire. Likewise we have the articles of Webster and Hill, Helen Mackay and Harold Shaw, and we recall the pioneer Rollier of Leysin in the Alps. Sir Henry Gauvain with C. R. M'Crae has drawn attention to noteworthy results on the mentality of "sub-normal" patients which they attribute to artificial light treatment. To these investigators we naturally add the fundamental discoveries of Alfred F. Hess, Weinstock, Kramer, Howland, Park, McCollum and Steenbock and their associates in this country.

Light is defined briefly as a series of waves in the cosmic ether which travel at the tremendous rate of some 300,000 kilometers per second, those of certain (relatively short) lengths exciting the retina to appreciation. However, visible rays constitute an insignificant part of the whole. Beginning with the long waves at the "left" of the spectrum, measuring from hundreds of meters in length down to 60,000 millimicrons ($\mu\mu$), and including the Hertzian waves utilized in radio-telegraphy, we come to the infra-red or "dark heat rays" which merge into visible rays at lengths of about 760.

The infra-red waves (detected by a thermometric arrangement) have a warming effect upon the skin and to some extent upon the subcutaneous tissues. Such warming effect stimulates that of heat as used in general therapeutics but is without specific chemical or "biological" effects.

We then pass through the visible spectrum—red, orange, yellow, green, blue, indigo and violet—with greater warming, and certain mildly therapeutic, effects extending even subcutaneously and acting undoubtedly in a reflex manner through sensory nerve endings in the skin.

However, just as the longer solar rays extend into the infra-red region, some of the shorter waves extend into the ultra-violet region—those from 380 down to about 300. These are detected by fluorescent screens, photographic films and the like. They succeed in penetrating the skin and—the longer ones—even to reaching the superficial capillaries, producing heat but not much germicidal action. Certain ultra-violet lamps, however, produce waves much shorter and more powerful than those found in the sunlight—waves measuring from 300 down to 100. These compose the far ultra-violet or distinctly bactericidal but only slightly penetrating waves.

Beyond these lie the x-rays and gamma rays of radium whose length decreases to infinity, whose penetrative and biological powers may be very great and whose therapeutic effects, as well as

dangers, are still very inadequately understood. These will not be discussed further here.

The longer ultra-violet rays (380-300) appear most beneficial for general "flooding" light baths while the shorter ones (300-240, and below) have use for local effects. The Finsen rays lie in the visible-violet and longer ultra-violet regions.

Leonard Hill emphasizes the therapeutic value of the *middle* ultra-violet rays (320-240) as most effective, since these include both heating and chemical effects and the longer of them succeed in penetrating to the deeper cells of the skin. A limited group of waves (305-295), which indeed may be found "in high sun and clear sky," are always the most effective. These are stronger in "diffuse blue sky-shine" than in direct sunlight, so that heliotherapy can be carried out in the shade on bright days, also on dull days if prolonged. There is doubt whether solar light furnishes waves under 295 $\mu\mu$, at low altitudes, since such are absorbed by the earth's atmosphere.

Waves of the middle group are said to "knock electrons off of atoms" and alter the electrical charges in colloidal protoplasm which results in an aggregation of the particles present. There appear granulations in the protoplasm with an increase in acidity, *i. e.*, chemical changes which, after a latent period, lead to redness, edema and lymphocytosis in the exposed skin or tissues. Later, pigmentation (melanin) occurs—a protective feature against burning—which converts even visible rays into heat rays in the skin, leading to a reflex dilation of blood vessels with accompanying sweating, evaporation, and cooling phenomena.

The potent rays are also hemo-bactericidal and increase the immunizing power of the blood and tissue cells, probably by absorption of dead proteid products. Advantage of this may be taken by withdrawing blood from the body, irradiating it and returning it with increased immunizing powers.

Many things interfere with the beneficial effects of ultra-violet rays in sunlight such as the earth's atmosphere, smoke, window-glass, indoor existence, etc.; furthermore, clothing, thick parts of the skin and certain types of skin, as in sandy-haired, freckled individuals who do not pigment readily. Likewise it is said that those who are neurotic, suffering from acute diseases or with fever and the like, are not subjects for possible irradiation benefits, particularly the difficultly controlled effects of sunlight. Naturally greasy skins do best as they absorb ultra-violet rays and reflect red rays.

At this point, science comes to the rescue with its controlled dosage of ultra-violet rays as dispensed in the carbon arc, tungsten arc, mercury vapor quartz lamps and their modifications. Some forms of lamp require long exposure and are accompanied by objectionable heat, while others require but a few moments exposure once or twice a week.

A large list of afflictions are included in the satisfactory therapeutic results reported: rickets, infantile tetany, surgical tuberculosis, rheumatism, various skin diseases (especially lupus and some eczemas), anemias, colds, bronchitis, sexual impotency, varicose veins, and mental backwardness or "lower levels of intelligence"—the latter particularly in children. Indeed, Pearce and van Allen report protection of rabbits against inoculation of cancer by exposing them to the rays in question.

It is necessary to proceed carefully in ultra-violet ray therapy. Normal reactions do not follow until the day following exposure. The eyes (conjunctiva) must be protected although retinal effects are said to be due to visible rays only. Likewise the head must be protected in the case of sunlight which is also known to set up chilblains in too much exposure of the legs.

Hill believes that the usual brick hospitals in cities are out of date and unjustifiable, and should be replaced with bungalows with open-air wards, verandas, and unroofed open-air courts. The war experience showed that wounds and fevers did wonderfully well out-of-doors. People must be taught to get rid of smoke pollution, wear less clothes, expose more of the skin to light and, with the help of arc baths and more playing fields, health can be greatly improved. Artificial silk stockings (acetylcellulose) prove more transparent to the rays than protein products such as silk or wool fibers. Artificial silk zephyr-like material can be worn when modesty requires.

Irradiation of foodstuffs has been especially investigated by American workers. Various oils and cholesterol-containing foods may be seen to take on the antirachitic and health promoting powers seen in the use of cod liver oil. Subsequent cooking, boiling and aging do not seem to deteriorate them. Hill maintains that cattle may be given arc baths in winter no less than children in schools. Irradiated bits of skin of various animals fed to rats the glands developing later and only reaching their maximum size on rachitic regimen have been proved to recuperate them promptly, and in a manner similar to many irradiated foods (wheat, biscuits, flour, meat, milk, eggs, olive oil, lard, cotton seed oil, and linseed oil).

Hill makes a plea for the standardization of lamps and the riddance of quack instruments including those giving simply a violet colored light. (Necessarily, *ultra-violet* is invisible to the human eye.) He suggests that bathrooms be equipped with arc baths for 5-minute exposures of the nude body once or twice per week, where sunlight is undependable.

The arc rays should not be considered as a panacea. There is some danger, principally in the nature of burning, from their overuse, and there is apparently some justifiable reason why we tend to avoid too much sunshine.—(*Am. Jour. Pub. Health*, April, 1926.)

The Health Department and Free Service

Francis E. Fronczak, M.D., Dr.Sc.P.H., speaking at the last Public Health Association on this subject said that the discussion is built upon a much mooted question: "To what degree is a health department justified in extending free service without encroaching upon the field of cure in (a) periodic health examinations for adults, (b) dental service, and (c) developing specialties in a child hygiene program such as nutrition, posture and eye service?"

"I appreciate the fact that to discuss this question fully is treading on debatable and somewhat dangerous ground. But viewing it from the point of a sanitarian, my own answer is that the health departments are justified to a very considerable degree in extending the so-called free service, and can do so without doing any material harm to anyone whose work is limited to the field of cure.

"A thorough examination should be made yearly of all persons, not only children but adults, and almost invariably some physical or mental defect will be found. This physical examination should be extended by health departments. So much propaganda has been spread fostering this procedure of periodic health examination, especially of adults, and so many agencies have been engaged in this type of work, that the subject has become monotonous to many, including some of my audience. Despite this, it is a fact that the physical and mental examination of the apparently well promises at present to become not only a most powerful factor in the extension of medical service but also a most valuable addition to our armamentarium in determining the trend of public health administration in the future, as well as a vehicle for cementing a closer coöperation between practitioners of medicine and public health officers.

"In most instances the department of health is now and should be limited to the field of prevention and should not encroach upon the field of cure. Certainly the overburdened medical personnel of our health departments should not be called upon to perform duties which are within the scope of activity of a general practitioner.

"The health department has always been concerned with environment and with the condition of health of large groups, practice of medicine by the wholesale—a term so appropriately used by Dr. Evans of Chicago. Yet there is every indication that the trend of the public health movement is even now towards the safeguarding of health through measures that may be applied directly to the individual.

"It must be admitted that in many parts of the United States, practitioners of medicine have during the past few years developed a critical if not an antagonistic attitude toward preventive medicine and public health administration. This attitude in many instances has been developed from a misconception concerning the aims of the health office. The practitioner has been led to believe that the public health administrator sought to compete with the physician or to make medicine partake of the nature of a sort of public utility. Of course, this misconception is based upon no reasonable grounds whatsoever. The periodic medical examination recommended for adults and urged by health officers has done much to remove any doubts concerning the attitude of the health officer towards the commercial phases of medicine that may have existed.

"From many statements made by men who are interested in public welfare, the conclusion is quite generally accepted that health departments are justified in extending their services by advocating and instituting periodic health examinations for adults. In such service they aid, rather than encroach upon the field of cure, for by initiating these periodic examinations, they pave the way for the practitioner to assume and continue them.

Dental Service

"Many dental clinics have been established in connection with the department of health and with the coöperation of dental colleges and hospitals, which serve a class deserving and needing free service. Health departments everywhere are the means of instituting well balanced methods of instruction in regard to dental matters, as well as prophylaxis and follow-up work along those lines in the schools and health centers, clinics and dispensaries.

(*Continued on page* 311)

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NEW YORK, DECEMBER, 1926

A Change in the Editorship of the Medical Times

Changes are about to ensue in the editorial conduct of the MEDICAL TIMES. Dr. H. Sheridan Baketel, after fifteen years of devoted service, is to terminate his affiliation with this journal, while Dr. Arthur C. Jacobson is to assume the editorship. The relationships involved have always been marked by understanding, friendship and common aims. Upon the basis of its strong editorship in the past, the high regard in which it is held by the profession, and the long training of the new editor throughout nearly the whole of the retiring editor's highly successful régime, we base high hopes for the future of the MEDICAL TIMES.

It is fitting in this place to speak of the extraordinary impress made and left upon this journal by Dr. Baketel, whose great gifts and abilities were always unreservedly bestowed upon the publication, informing and coloring every issue in a manner that would be hard to match among our contemporaries. This is one of the glories of independent medical journalism, which affords one of the best avenues through which the individuality of a great leader or thinker may function freely to the end that science and the profession may be well served.

Louisa Lee Schuyler

The death of Louisa Lee Schuyler awakened in the minds of many socially-minded physicians memories of a distinguished career which touched at a number of points the domain of medicine, for this remarkable woman was identified as a pioneer with social service, with revolutionary administrative changes in the State Hospitals, with the movement for the prevention of blindness, with the inauguration of the first training school for nurses, with the foundation of the State Charities Aid Association, and with many other medico-philanthropic activities. In her case wealth and the best of American stock combined to foster high intelligence which applied itself assiduously and constructively to remedying some of the major ills of society. Since much of the blood of Alexander Hamilton and of Philip Schuyler flowed in her veins we need not wonder much at her manner of attacking solutions; here was at once, in the person of a woman, the statesman and the field marshal, working triumphantly in spheres which would have taxed the best powers of her famous ancestors—triumphantly, but quietly, for nowadays our tocsins ring mostly for the spectacular feats of the sisterhood. The Schuylers are unknown of the folk who but for them would fare far less well in the great crucible of life. To a few, the Schuylers give a special meaning to the word heroine.

Commendable Spunk

Occasionally the worm turns. A recent instance is the outspoken denunciation of the Volstead Act by our esteemed contemporary, *The Boston Medical and Surgical Journal*, which under date of September 30, 1926, remarks that "The customs and habits of people cannot be changed in the space of a few years and honorable physicians may be justified in many instances in issuing prescriptions to those persons who are mildly ill and who have been in the habit of using alcoholic beverages. To withhold alcohol in some cases may cause trouble. We are quite sure that physicians are as careful in observing the prohibition requirements as any other group of persons and we confidently believe that failure to enforce the law depends more on some of the unreasonable and impractical features of the act coupled with indisposition of the government to strictly enforce the provisions of the law rather than to the actions of physicians."

The occasion of our contemporary's remarks was the announcement of a Federal Prohibition Administrator that 85,000 gallons of liquor had been prescribed by Massachusetts physicians during the last year.

As to "Constant Reader"

A noted French alienist has expressed the opinion that "all persons who write to newspapers are not mad, but all mad persons write to newspapers." The doctor always asks persons subject to his investigations whether they write letters to editors, and if their replies are in the affirmative he suspects them of mental unbalance.

It is interesting to note that the foregoing views were expressed for the benefit of the French press, wherein our naïve alienist would not seem to differ greatly from the subjects of his criticism.

Light on Swift

Many attempts have been made to unravel the tangled skein of Dean Swift's life, but no competent study of it—not even Leslie Stephen's—accounts for much of the behavior of this "man of overwhelming intellect," as Kipling accurately describes him.

The editor postulates Swift as a homosexual. This theory adequately explains his hitherto unaccountable attitude toward Stella and Vanessa and also his misanthropy, which was what the psychologists term a "projection" mechanism whereby he resisted his homosexuality.

Commonly rated as a hater of men, Swift really concealed an intense love of his fellows behind a mask of misanthropy. What was the motive for writing the famous "Modest Proposal" if not a burning passion for the welfare of his countrymen?

That the terrific conflict which must have waged in such a mind did not result in paranoia is only another proof of the tremendousness of the man's intellect. The dementia of his old age was a commonplace outcome of senility.

Present-day psychiatric doctrine ascribes paranoia to the fatal results of resistance and conflict in ordinary men with respect to homosexuality. Even the great Walt Whitman had to accept homosexuality and sublimate it intellectually and creatively in order to maintain his sanity.

Swift, the Titan, accepted and sublimated in part, and in part suffered cruelly, the struggle and the compromise giving us, not a lunatic, as his enemies and stupid folk have always averred, but the creator of some of our greatest English classics.

But for his homosexuality, Swift would have differed but little from other Anglican priests.

The Intelligence of Athletes

A study of the student body at Rutgers seems to reveal a lower intelligence in the athletic leaders than in the leaders in non-athletic activities. The captains and managers of varsity teams in 1925 and 1926 had an average intelligence rating of 73.8 per cent as compared to 82.1 per cent for non-athletic leaders. "The training given by athletics would seem to be of merely physical value. . . . It seems to be the idea of coaches that the student maintain passing marks in his studies only as far as it becomes necessary to allow him to compete. The faculty, on the other hand, seems to regard athletics as an evil that takes the student away from his legitimate work." The average scholastic grade for athletic leaders was 75.5 per cent and for non-athletic leaders 79.5 per cent.

The relatively poor scholastic showing of the athletic leaders can obviously be accounted for on grounds other than lower intelligence. As to the intelligence tests themselves we submit that the speed and intelligence shown in applying practically the complex technicalities involved in a game like modern football ought to be credited to the athletic group in figuring their intelligence quotients. Failure to take this point into account is an injustice to the athletes.

And given two teams of equal speed, weight and condition, does not the issue depend upon which eleven possesses and displays the keener intelligence? Here we have a science and an art, in the guise of sport, affording competitive tests far superior to many of the kind employed by the psychologist—himself, very often, a prejudiced adult who began his highbrow career as a grind.

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M.D.

Failure of Force in Education

"Spengler represents each civilization as a living being with large traits and general development similar to that of a human being. We are now living in the second century of the age of great wars, with civilization, from the view-point of art, knowledge, and science, at its summit. Militarism, the development of politics, and strife between employer and workmen have in a subtle manner developed methods of offense and defense. It is not strange that individual human beings should be tempted in these days to use the shortest way possible (that is, force) to reach their aims. We live in a time of terror, of 'using one's elbows,' of unscrupulous egotism, resulting in reckless misuse of the human body, which, it is assumed, can be governed better by dictatorial intellect and will than by the natural instincts of the unconscious.

"The unfavorable consequences to the individual of these principles are nervous breakdowns and the inability to preserve, in economically limited situations, the primitive joy of life essential to the healthy organism.

"General discontent is gaining ground, increased on the one hand by the brutality of every one to every one else, and on the other hand by auto-suggestion in continually discussing and brooding over misfortunes.

"In this environment of discontent our children are growing up. In innumerable families, time and patience necessary to children are lacking. This leads to strange methods of education.

"Examinations in certain schools in Vienna have shown that a number of deficiencies due obviously to the physical incapacity of the child were treated solely by measures of sheer violence. The child is scolded, punished, beaten, or nagged from morning till night in an insupportable way. These are signs of an incredible lack of understanding of children. Can any one believe it possible to enforce liking or produce strength in the child by violence? Can I command joy of work, appetite or love?

"Education is not so easy as all that. Giving way to dissatisfaction by using strong language does not educate.

"If the overworked mother of a family is unable to show sufficient patience toward a child, that child should find in the kindergarten and the school a person who tries to find some way of awakening the missing feeling of joy. To search for such persons with fine ideals and healthy nerves, and to make them educators of our school children, is, in my belief, one of the most urgent tasks of our period of civilization.

"In a mature man, say between forty and forty-five years of age, unrelenting severity begins to be replaced by conciliatory feelings. Civilization shows in this period innumerable pacifistic endeavors toward the general welfare. If ours is the first great center of civilization to understand the great truth that no civilization can continue to develop eternally, then it is our task to investigate prophylactic measures by which the organism, marked for decay, can yet retain youth and resistance for a long time.

"Above the noise of the fight between methods of education, one thing seems evident: That only a few are able to use the new method of education which requires letting the child work out his own problems, learn to depend on himself to the furthering of his individual talents and adaptation to different phases of development. How else could it be possible for parents to react to a child's lack of appetite by boxing his ears, for teachers to react to their pupils' restlessness (probably the natural desire for necessary exercise) by keeping them after school hours, or ordering them to copy a hundred times 'I should sit quietly in school?' Or for physicians to permit kindergarten teachers to drag newcomers by the collar to the examination?

"I take a stand for the abolition of violence in this connection. I am absolutely convinced that anemia, neurasthenia, all the different forms of listlessness, dissatisfaction in the family life, in society, in working place and office, that suicides, divorce, passive resistance and terror, war, rape and murder can be traced back and attacked at the same point, and that the lack of under-

standing and the acts of force are the causes of these evils.

"Wherefore in my capacity as school physician, I want to add to the highly developed physical culture of the Anglo-Saxon race and the ingenious French experiment of fighting the lack of joy by auto-suggestion of cheerfulness, the idea of finding the fundamental problem of happiness in the conscientious choice of the educators. We have to find men and women who are able, without violence, and with enthusiasm born of understanding and love for the soul of the child, to bring up new and lovable members of society who, in their time, will introduce the same kind of behavior in their family and professional life."

—Dr. Hans Redtenbacher, of Vienna, in *The Nation's Health* (Chicago).

Public Health

(*Continued from page* 308)

The idea of consulting a dentist every 6 months has been drilled into every child in recent years, and despite the fact that we are constantly threatened by the magazines with many diseases bearing dreadful names, the condition of the teeth of the nation is becoming more satisfactory with each passing year.

"Dr. Park gives us food for thought in this statement: 'I believe if expectant mothers received ample, well balanced diets in which green vegetables were abundantly supplid and cow's milk was regularly taken and if our patients were kept in the open air and sun and if their babies were placed in the direct rays of the sun for a part of each day and were fed cod liver oil for the first 2 years of life, more could be accomplished in regard to the eradication of decay of teeth than all other treatments put together."

"Here again a question of education arises. The care of certain classes is even a more important obligation of our health departments than of the many agencies which are vitally interested in periodic health examinations including oral hygiene and other specialties.

"The leading life insurance companies are eagerly spreading helpful propaganda. Our immense industrial corporations, hospitals and health departments are all in accord that oral hygiene and prophylaxis should be taught in our schools and subjects should be presented by oral hygienists with teaching experience. The prophylactic work should be carried on in our clinics and health centers by oral hygienist practitioners. This instruction and care of the teeth begun in early youth and continued through adulthood leads the individual to consult the oral surgeon, not only when such consultation becomes absolutely necessary, but as a means of prevention.

"In teaching those citizens the indispensability and real value of the services of a first class dentist, it aids not only the individual himself, but the profession. Therefore, we conclude also that by extending free dental service the health department has increased the practice of the dental practitioners instead of encroaching upon their field.

The Child Hygiene Program

"The third question before us this afternoon is: 'To what degree is the health department justified in extending free service without encroaching upon the field of cure in developing specialties in a child hygiene program such as nutrition, posture and eye service?'

"To my mind it is imperative that the health department should develop the specialties in a child hygiene program. For instance the underweight and malnourished children in our public schools present a problem which places that class of work in a special department. To correct this condition, the coöperation of the parents, the health department and the family medical attendant is greatly needed. I can assure you that through the department of health of Buffalo, not hundreds but thousands of cases yearly are referred to the medical practitioner. Please notice that I said 'referred' not 'cured.'

"In a very recent issue of his well edited weekly bulletin, *Chicago's Health*, which was dedicated to 'Posture of Children,' Health Commissioner Bundesen of Chicago said: 'Postural defects should be corrected early and a special department should have charge of this important branch of school life.'

"Apparently the average parent does not pay much attention to the posture of the child; yet everybody will admit that posture is important from a standpoint of health beauty and even economic efficiency. For these reasons the teaching of right posture and its good effects is essential. If incorrect posture is due to poor vision, poor nourishment or undeveloped muscles, the finding of these is within the province of preventive medicine.

"During the recent series of examinations in one of Buffalo's largest high schools, 135 boys were given a complete physical examination in one morning. Four doctors participated, each doctor covering his own specialty. Eight cases of 20/80 vision both eyes were found, yet none of these boys wore glasses and they were juniors. With the rate of 8 out of 135 with 20/80 vision, how many in our present great representation of high school pupils are nearly blind, and why? These cases should be found early and there is only one recommendation to make, namely, that a special medical division should be operating under our health departments, spending their time on visual defects only, and referring them to the family physician. But defective vision is only one of many defects that are found.

"There are many methods of bringing before the parents today the necessity of correcting the children's nutrition, posture, vision, hearing and other defects. The health departments through physical examinations in the schools and through the so-called free service extended, can accomplish much and are justified in taking every advance step in a subject so vital.

"An educational program of lectures and publicity accomplishes much. Such a program should be followed up in the schools and the gross defects corrected by special classes under medical supervision. Not only should the child be educated along this line, but the mother, too, should receive instructions in child hygiene and proper nutrition at well-baby clinics and dispensaries, which are usually divisions of the local health department.

"I repeat that our health departments should not treat diseases but they should discover them in individuals through their medical examination service. The health department of Buffalo does not enter into what you may call the curative part, for the activity should be and is purely the function of the physician, the dentist, and the medical specialist. But the health department by extending its free service in thorough physical examinations points out the way by which individuals can avoid the dangerous rocks of a threatened physical breakdown or wreck."

Industrial Hygiene and Local Health Departments

H. L. Rockwood, Commissioner of Health, Cleveland, O. observes that industrial hygiene at the present time is an activity in public health endeavor conceded to be both legitimate and productive as a function of local health departments, yet nevertheless entirely lacking except in a few larger and well financed organizations.

The subject of specific occupational disease should not be considered as the chief point of attack in the development of an industrial hygiene program. In plumbism we have an example of an occupational disease which has served to focus attention on specific diseases arising from employment, and in America at least lead poisoning has occupied the same position in the field of industrial hygiene as has enteritis in the development of child hygiene and tuberculosis in the general public health program in this respect.

In most of the leading activities which grouped together comprise present-day public health practice, there has been some single cause of illness or mortality which due to its prevalence and its devastating effects on human life has served to arouse both public opinion and public funds in efforts to combat encroachments on the health of certain population groups. In industrial hygiene the trend has been toward adding to lead poisoning other forms of industrial poisonings and one or more other diseases such as dermatitis, anthrax, glanders, and epithelioma occuring among carbon and tar workers. This trend toward narrowing the field of industrial hygiene to specific occupational diseases resulting from certain processes in industry hampers the development of more fundamental and more productive efforts toward hygienic betterment of working conditions for the whole group of industrial workers.

There is every good reason why industrial hygiene should be considered as a definite entity and as such appear with the other major subjects which compose approved health department practice. In all of the industrial cities wage earners have an undeniable claim for official recognition on the part of the health department that this department of the local government must carry a part of the responsibility for working conditions which constitute health hazards. And these health hazards need in no way be those which are specific for certain of the compensable occupational diseases under workingmen's compensation acts.

Hayhurst summarizes the leading health hazards as dust, dirt, dampness, devitalized air, temperature, fatigue, and darkness. There are, of course, others. None of these general health hazards in industry can be said to be the cause of specific occupational diseases which are compensable under the statutes. And yet in most cities with varied industries such health hazards in the aggregate are of vastly greater moment as affecting the health of workers than those few trade processes responsible for specific occupational disease.

Before local health departments proceed with a comprehensive industrial hygiene program this trend toward specific occupa-

tional disease objectives should be merged or correlated with a broader but nevertheless definite objective including leading health hazards in industry wheresoever they may arise.

At the same time, there need be no fear that in such a form of attack on these problems the incidence of the principal specific occupational diseases would be unaffected. · Books on army tactics agree in stating that frontal attacks are seldom used in army campaigns, the lateral and the encompassing forms of attack being more commonly employed. A well organized campaign on the leading health hazards in industry could not fail to correct indirectly many of the conditions responsible for most of the industrial poisonings now recognized, and particularly does the same statement apply to a form of industrial poisoning not as yet fully recognized in its prevalence or in its insidious effects on the health of industrial workers, namely, chronic carbon monoxide poisoning.

It is obvious that whether the objective be to remove the leading health hazards in industry or to correct the hazards of most of the industrial poisonings, the principal activity in an industrial hygiene program should be directed toward air conditioning. No other single factor is of more importance in this field. Dust, dampness, devitalized air, temperature, fatigue, and to some extent dirt and darkness are attacked through efforts toward proper air conditions, and most of the industrial poisons are best combated in the same manner.

Outside the field of industrial hygiene, as well as inside, air conditioning also looms large as the subject most requiring development in public health. The smoke problem, the obnoxious odor problem, the prevention of rickets and of tuberculosis by removing air-borne obstacles to the beneficent effects of the shorter wave lengths in sunlight, the dangers of the closed garage and the flueless gas heaters as related to carbon monoxide, and high pneumonia and influenza rates as well, all point to a need for a more intensive public health program in securing better air. To-day, with respect to the air we breathe, we are very much in the position we were regarding the water we drank when typhoid and water-borne diseases were rampant 25 years ago.

Standards of yesterday in air conditioning cannot wholly be accepted as the standards of to-day. The local health officer must await the erection of standards which are practical and workble before entering far on an air purification program. Practical standards are those which do not unnecessarily suppress or embarrass industry. Prohibiting the use of white phosphorus or the sale of "ethyl gasoline" may be necessary as emergency measures to prevent industrial poisoning; nevertheless, as practical and workable standards in industrial hygiene, prohibitive regultions as related to the use of materials or the sale of products must be considered as heroic measures, and not well suited to the proper development from such an infant or even embryonic stage as industrial hygiene must now be conceded to occupy in most local public health programs.

There are still other obstacles in the development of industrial hygiene as a major function of local health departments. The financial obstacle need not be discussed at length as the question of sufficient funds applies to all extensions of public health programs. In safety hazards as well as in those occupational diseases declared compensable under workingmen's compensation acts industry has borne in self-defense the expense of making large outlays for the purpose of lowering the incidence of industrial claims. Clubbing industry by such methods into the support of the whole program of industrial hygiene must not be allowed to continue as a standard method of procedure. Financing must come through convincing both employers and employes that industrial hygiene has something to offer industry, and when this is accomplished the tax duplicate will do the rest.

Two other obstacles loom large in furthering industrial hygiene by the local health departments. These are: (1) the difficulty in operating harmoniously with workingmen's compensation acts and the organizations responsible by law for their administration, and (2) the uncrystallized state of professional and public opinion as to the placement of safety hazards as related to governmental regulation by health departments. Opinions seem to be well formed that mechanical injuries fall without the scope of health department functions, but there are other forms of injury where the question remains debatable. In most municipalities it is rare to find any governmental agency other than the health department which can readily undertake to deal with safety hazards prophylactically, and apparently most of the efforts now being made to reduce accidents and injuries from violence are undertaken through private safety organizations.

In conclusion, there seem to be well defined needs for the establishment of industrial hygiene as one of major activities of local departments. As a first point of attack the subject of air conditioning for the purpose of reducing general health hazards in industry deserves emphasis. Practical standards of operation based on professional judgment are necessary for extensive development of the industrial hygiene program by local health departments, which must set forth:

1. The objectives with due regard for the relative incidence of specific occupational diseases and of other unhygienic factors in industry.

2. A separation from compensation acts of all functions of local health departments in this field.

3. The relation of the local health department program to safety hazards and to those agencies, public or private, engaged in accident prevention.—(*Am. Jour. Pub. Health, April,* 1926).

Bovine Tuberculosis

An editorial on recent research by Calmette and others summarizes the conclusion reached thus: "that there exists only one race of tubercle bacilli in mammals (Bacillus tuberculosis-mammalium), and that its adaptation to the body of man or of cattle has brought about its separation, not absolute, however, into two types of bacilli presenting certain differential characteristics, the human type and the bovine type."

Quoting the work of Park and Krumwiede, it appears that "all pulmonary tuberculosis is caused by the human type of bacillus, while about one-tenth of the tuberculosis of bones, joints and lymph nodes in adults and one-fourth of tuberculosis of this type in children is due to bovine bacillus."

It is stated that from 6 to 10 per cent of deaths from tuberculosis under the age of 5 years are to be attributed to the activities of the bovine type of bacillus. These deaths result chiefly from miliary tuberculosis and tubercular meningitis. "Pulmonary tuberculosis due to the human type, and the so-called surgical tuberculosis due to the bovine type of bacillus, are seldom found together."

Pasteurization, if properly done, effectively destroys the bacilli, that is, "if the milk is brought to a temperature of 62.5° C. and maintained at that temperature for a half hour."

The process of condemnation and slaughter of infected cattle is said by various lifelong students of tuberculosis to be impossible of attainment owing to the tremendous waste involved.

It is suggested now that the process of racial immunization through which man has gone may eventually result in a race of cattle possessing a high degree of immunity to bovine tuberculosis. There is no question that infection of a susceptible animal heightens its resistance to reinfection. Results already attained seem to be encouraging and "the scientific standing of several of the proponents warrants serious attention."—(*Jour. A. M. A.*, Feb. 20, 1926.)

Sunlight and Rickets

Rollier, the Swiss physician who first established the treatment of tuberculosis by sunlight on a scientific basis, did not limit his use of sunlight to the cure of tuberculosis. In 1910 a school was opened under his supervision where the influence of sunlight in the prevention of tuberculosis could be demonstrated. That this "school in the sun" was a success is shown by the ever increasing number of so-called preventoria which are springing up in this country for children known to have been exposed to tuberculosis. If sunlight is good for the cure of tuberculosis in older children, it is also certainly good for its prevention in younger ones. In 1916 a small volume was published in France by Dr. G. Leo urging the use of heliotherapy for the prevention of tuberculosis in infancy. Simple straightforward directions were given for sunbaths for babies, but apparently they attracted little attention either in Europe or in this country. · In recommending heliotherapy for infants Leo thought only of its value in preventing tuberculosis. Little did he realize that in so doing he was advising a procedure which would also prevent another and more common disease of infancy.

To many people today, moreover, heliotherapy implies only the cure or prevention of tuberculosis. Our conception of the value of heliotherapy must be widened to include the cure and prevention of rickets as well as that of tuberculosis. Recent medical investigation has shown that sunlight has an absolutely specific effect in the prevention and cure of rickets and is indispensable for the normal growth of infants. Rickets as a chronic nutritional disturbance has been known to physicians for over 250 years, but the importance of sunlight in its cure and prevention has only been known definitely for the past seven years. The true value of sunlight in relation to rickets was first suggested by an Englishman in 1890 and reiterated in 1912 by a French investigator, but actual proof of its value was not obtained until 1919 when *x*-ray photographs of the bones demonstrated that rickets could be cured by ultra-violet radiations. Two years later 1921, investigators showed that cure could be brought about by sunlight alone.—(*U. S. Department of Labor.*)